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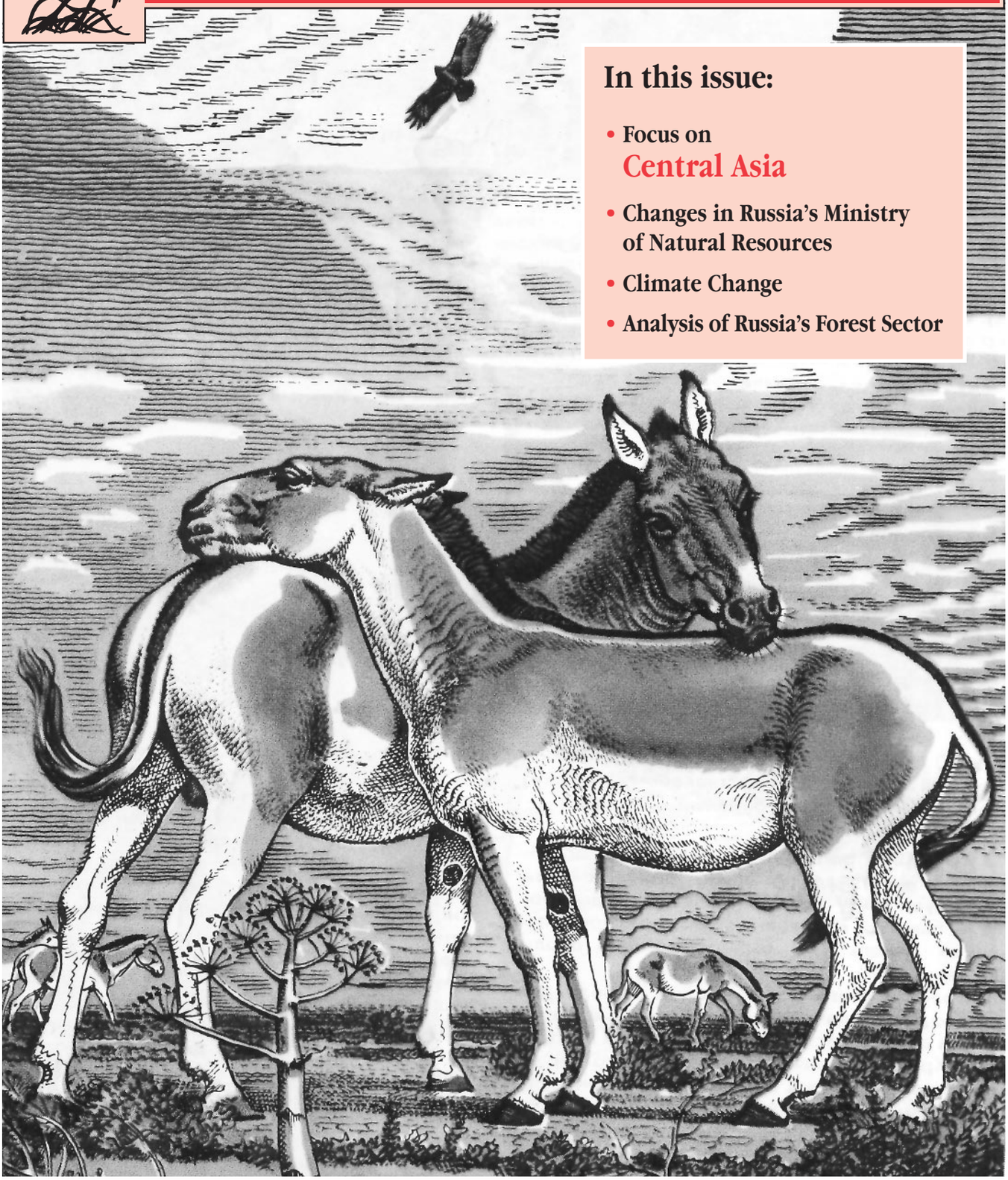
Russian Conservation News



In this issue:

- Focus on **Central Asia**
- Changes in Russia's Ministry of Natural Resources
- Climate Change
- Analysis of Russia's Forest Sector

PROMOTING BIODIVERSITY CONSERVATION IN RUSSIA AND THROUGHOUT NORTHERN EURASIA

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The mission of the Center for Russian Nature Conservation (CRNC) is to promote the conservation of nature in Russia and throughout the former Soviet Union, and to assist conservation groups in that region through information exchange, coordination of professional and education exchanges, and provision of technical assistance to protected areas. CRNC is a project of the Tides Center.

Center for Russian Nature Conservation

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RCN has many partners and friends in Russia, including the Partnership for Zapovedniks, whose mission is to offer organizational, technical, and financial help to zapovedniks and national parks in Russia.

PARTNERSHIP FOR ZAPOVEDNIKS

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ON THE COVER

Kulan (Equus hemionus)
Cover drawing by V. Gorbatov

Voice from the Wild (A letter from the Editor)

In contrast to the sunny, glistening winters that usually prevail in Russia, the winter months in Moscow this year have been gray and slushy. It's almost as though nature itself is reflecting the mood of Russia's conservation community, whose longsuffering enthusiasm has been dampened by recent changes in governmental environmental management. When President Putin reshuffled government ministries last summer, replacing geologist Boris Yatskevich with highway manager Vitaly Artiukhov as Minister of Natural Resources, protected areas' staff accepted the change with tempered confusion. But in recent months the minister's appointment has displayed clear negative trends for government-sponsored nature protection.

Understanding the new minister and his plans is difficult, precisely because he offers so little information to the public about his intentions. When he does, however, his ideas tend to shock, as was the case with his recent announcement that he hoped Russia would pursue an abandoned Soviet-era project to redirect north-flowing Siberian rivers southward to sell water to the arid stretches of Central Asia. In this issue of *Russian Conservation News*, we begin by taking a closer look at changes in management from the Ministry of Natural Resources. Continuing our coverage of Russia's forests, which are currently in the hands of the Ministry of Natural Resources, we also offer an insider's view on the challenges Russian forestry faces to modernize the industry without sacrificing the ecological health of the forests. And as a contrast to the work of governmental environmental agencies, we look at the recent history of non-governmental environmental organizations, as well as examine a new – really the first – in-depth analysis of climate change in Russia, prepared through the joint efforts of governmental and non-governmental organizations.

But in this issue we also invite you to leave behind Russia and this year's dreary winter and travel with us to the warmest regions of Northern Eurasia. "Look 'round thee now on Samarcand!/Is she not queen of Earth, her pride/Above all cities? in her hand/Their destinies? In all beside/Of glory which the world hath known,/Stands she not nobly and alone?" Edgar Allen Poe's poem *Tamerlane* describes the tragic ambition of Amir Timur, whose empire once spread from India to the Mediterranean Sea, and who placed his capital, Samarcand, on the sands under the gaze of the Tien Shan Mountains of present-day Uzbekistan. The rule and use of Central Asia's natural wealth has varied through history, attracting attention as the setting of both the Great Silk Road and the political play that Rudyard Kipling dubbed the "Great Game." In Soviet times, poor management of natural resources for rapid development led to a host of environmental problems, and today the region's inheritors – the sovereign nations of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan – share this land and must puzzle over sustainable use of its resources.

In this issue of *Russian Conservation News*, come explore the land behind the myth with us as we traverse its deserts, mountains, and steppes, meeting the region's wildlife and examining its conservation strategies. Beginning in Uzbekistan, we offer a glance at the country's major landscapes and threats to their survival. Then we shift our focus to Central Asia's endangered wildlife, and in particular to Central Asian species of gazelle and wild ass. Finally, we examine a new conservation plan for protecting the endangered leopard in rural Turkmenistan, where conflicts between local communities and leopards are common.

And so, with warm wishes from the editorial board, we hope you enjoy this issue of *RCN*.

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Protected Areas

A Cloud Over the Protected Areas

*By **Nikolai Maleshin***

The late 1990s witnessed a blossoming in the system of zapovedniks in Russia. Many factors played a role in this trend, but key points included the understanding and professional approach that the State Committee on Environmental Protection applied in their work with protected areas, as well as the support protected areas received from the Global Environment Facility.

Changes began in May 2000 following the dissolution of the State Committee on Environmental Protection and the Federal Forest Service, and the transfer of their functions to the Ministry of Natural Resources, an agency historically responsible only for exploiting nature, not protecting it. But despite the seeming absurdity of these reforms, they led to an important result: for the first time in history, a unified agency arose to manage both zapovedniks and national parks together, a move many experts had sought for years. Boris Yatskevich, then Minister of Natural Resources, allowed the protected areas team to continue working together under the direction of Vsevolod Stepanitsky, who had been chief manager of the Russian zapovedniks since 1991. Between August 2000 and August 2001, Stepanitsky and his team accomplished a great deal, including founding Russia's 100th zapovednik and expanding several others.

But summer of 2001 brought yet more reshuffling in the government, replacing Boris Yatskevich with a new minister, Vitaly Artiukhov, in August. The period since then has witnessed a near collapse of the protected areas management system. Who is this new minister? Before his appointment as Minister of Natural Resources,

Vitaly Artiukhov, Russia's new Minister of Natural Resources. *Photo courtesy of S. Velichin and V. Radionov*, Natural Resource News.

Artiukhov worked first as Deputy Minister of Finances and then as the Director of the Transportation Fund, where President Putin openly accused him of mishandling funds. When the Transportation Fund was ultimately closed for its economic losses, Artiukhov, who had never worked in natural resources, became Russia's next Minister of Natural Resources. Many have speculated that it is Russia's oligarchs, eager to win a handsome share of the privatization of the country's natural resources, who placed the Minister in his current position.

One of Artiukhov's first steps was to restructure the Ministry completely, a controversial move that created a multitude of departments with unclear functions, goals, and tasks. Various decrees seem counterintuitive, such as pulling government funding away from those protected areas that have managed to find supplemental funding, in essence punishing those zapovedniks and national parks that are learning to adapt to the new economic realities of life in Russia. Doubling this confusion is an interior policy change that brought the ministry's document circulation to an utter standstill. The Minister demands to see all letters and documents personally, refusing, as it were, to delegate responsibility, but making all decisions himself. But if nothing else, the sheer volume of this paperwork has clogged Artiukhov's time to such an extent that essentially all documents – from simple orders to official inquiries – are left unanswered.

As a result, zapovedniks and national parks have gone for more than three months without receiving word from the Minister, effectively existing without any management. Moreover, the reformation of the Ministry has forced many in the protected areas' block into resignation; many others have left voluntarily from frustration with changes in the Ministry. Thus for more than two months, zapovednik staff have not known to whom they should address their questions and indeed, to whom they answer. The contemporary politics of the Ministry have brought the management of protected areas to the edge of ruin, threatening to undo the positive work of the past ten years.

***Nikolai Maleshin** is managing editor of RCN and director of the Partnership for Zapovedniks.*

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Why I left the Russian Ministry of Natural Resources

On December 12, 2001, ***Vsevolod B. Stepanitsky*** *resigned from his post as deputy head of the Department of Environmental Conservation and Ecological Safety, part of the Russian Ministry of Natural Resources. The following are excerpts from an interview by freelance journalist* ***Valery Sharov*** *published in* ***Zapovedny Vestnik****.*

Q: New management took over the Ministry of Natural Resources in 2001. To what extent did this change affect the ministry's policy with regard to zapovednik management?

Stepanitsky: The ministry's policy on zapovednik management today is undermining everything positive that was accomplished with such difficulty over the past ten years.

Take, for example, the ministry's new organizational structure. At first glance, everything looks fine: the Administration for Specially Protected Natural Areas and Sites has been revived... Of course, the staff has been reduced compared to the "zapovednik bloc" that worked in the old department. The office for managing nature conservation, research, environmental education and recreational activities at the zapovedniks and national parks has a staff of three people for a mere 130 zapovedniks and national parks. Not to mention that there are very few true professionals in this field within the ministry. The last of them are leaving, although we can hope that they go to one of the ministry's divisions.

Q: How does the ministry handle issues relating to the creation of new zapovedniks and national parks?

Stepanitsky: Just like they handle all the other issues, through a muddle of bureaucracy. For example, we had a new zapovednik – Ingermanlansky – almost set to go. All that remained was one simple procedure: coordinating things with the Russian Land Survey Agency. The agency would have reviewed this decree in just a few days, but a letter had to be sent there for this purpose. From July through December all manner of excuses were given for delaying sending this letter. We couldn't send it for five months! During that whole time we were lectured on the proper way to create a zapovednik. Since 1991 our staff has set up 30 new zapovedniks, getting 30 government decrees issued. It's a little late to start teaching us how to properly set up a zapovednik when we're working on the 31st. As a result, in 2001 not a single zapovednik was founded. The last year that went by in the Russian Federation without the establishment of a single new zapovednik was 1981.

Q: When the zapovedniks and national parks were transferred to the Ministry of Natural Resources a year and a half ago, many feared the ministry would start exploiting natural resources within the zapovedniks. These fears, however, did not come to fruition. What's happening now in this regard?

Stepanitsky: Addressing zapovednik directors on October 7, 2001, the new deputy minister of finance said that it was high time the zapovedniks earned money by logging trees in the buffer zone. When the director of Altaisky Zapovednik innocently asked, "What if the zapovednik doesn't have a buffer zone?" the deputy minister, without even thinking, answered that a section of forest should be removed from the zapovednik and turned into a buffer zone so that work could proceed. I'm struck not so much by the absurdity of this statement as by the very fact that a deputy minister who has worked in the nature conservation field for just a few days, without even bothering to look into the matter, would, with full confidence, offer such ridiculous advice.

Q: Will the system of Russian zapovedniks and national parks ever get a worthy model for government management?

Stepanitsky: I am convinced that sooner or later it will. Worldwide practices in managing national nature reserves are definitely a model toward which we need to strive. The path being pursued in the United States and Canada, South Africa and Tanzania, even Ukraine and Georgia, that is our potential path. We have stood on this path before; we were thrown off it in 1951, but it's high time to return to it. It would be better to do so sooner rather than later, and we need to work toward this. Which is what we are going to do.

Sunset falls over one of Russia's protected areas. *Photo by I. Shpilenok.*

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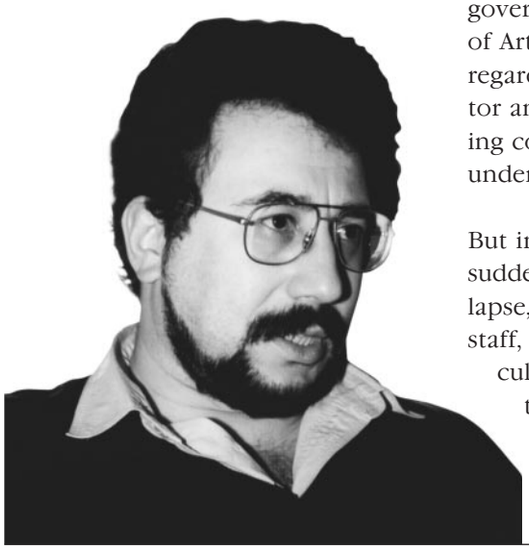
What is Happening in the Ministry of Natural Resources?

A note from the editors: *The following article, a variant of which first appeared in* ***Zapovedny Vestnik****, in December 2001, depicts the opinion of a respected expert in the Russian environmental NGO community regarding the workings of the Ministry of Natural Resources.*

By ***Evgeny Shvarts***

That which specialists in environmental protection and protected areas' management have long feared has finally come to pass. The protected areas' agency in the Department of Environmental Protection has been destroyed; the most respected professionals in other areas are leaving as well. Dozens of experts have been asked: why and how could this happen? Even following the dissolution of the State Committee on Environmental Protection there was not such a mass exodus of the best and brightest personnel in the nature protection world, perhaps in part because the Minister of Natural Resources, Boris Yatskevich, turned out to be one of the old adherents of the "fight for nature" ideology of the 1950s. Moreover, the protected areas' agency has recently accomplished visible gains in nature protection, increasing funding, and reviewing policy for developing the network of protected areas in government meetings for the first time in 40 years: it would make no sense to destroy such a successful government agency.



Evgeny Shvarts.
Photo courtesy by E. Shvarts.

At first glance it would seem only that Boris Yatskevich, the romantic geologist who wanted to "subdue" nature, had been replaced by the professional bureaucrat Vitaly Artiukhov. The new minister spoke of the need for ecologists to have a privileged position in the ministry's backbone and of the urgent need for meetings with leaders of non-governmental organizations. Many of Artiukhov's ideas and proposals regarding reforms in the forest sector and stronger controls over mining could well have been met with understanding and support.

But instead we have witnessed a sudden and nearly complete collapse, marked by a mass exodus of staff, problems with document circulation, and silence in response to official inquiries. Whispers have spread through the Ministry suggesting that the new Minister is conniving to launder money and orchestrate the upcoming privatization of forestlands to benefit oligarchs who placed him in power. The five federal services (water, geologic, forest, nature protection, and environmental safety) have almost no real responsibility, leading many to believe they have been created to act as scapegoats. Many suspect that oligarchs interested in benefiting from natural resources have specially placed the young and inexperienced first deputies in these services and paid them to accept any blame sent their way. The truth of these stories remains to be ascertained. Regardless of their validity, it would seem that the mass exodus of experienced specialists from the Ministry has a simpler explanation: the specialists simply do not want to work in the Ministry's current working conditions.

> "I couldn't look on with indifference while they dismissed the principles that had guided us and that we had tried to put into practice year in and year out. Real, active, effective work was replaced with...pointless paper shuffling, nitpicking, pompous rhetoric and useless meetings... When the cause that you are working for is your calling in life, it's a pleasure to go to work since it is not a burden but an entertaining game. But when going to work is like going behind enemy lines – that's not for me."
>
> – Vsevolod Stepanitsky, former director of the Department of Protected Areas

The impression is widespread that the Minister simply does not trust anyone. For this reason he holds all the real power in his own hands and refuses to delegate any true authority. He reads all the Ministry's outgoing letters personally. He personally signs all CITES

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licenses (last year, there were about 1,200, or about four licenses per day). He plans on personally reviewing the organization of all the leskhozy (state forestry enterprises), of which there are also about 1,200. But amid all this, where will he find time to deal with the licenses of oil and gas companies? The Minister has placed the entire Ministry practically on a wartime schedule, and has suggested that other managers should "tighten their ships" in the same way: as a result, department and division managers have begun working weekends without extra vacation time or overtime pay.

This style of leadership is reminiscent of the 1930s-1950s, but is far less effective now than it was back then. In those days, many people simply had no other job options; moreover, they were compensated materially for their work. At the present time, however, work in an honest state service in the apparatus of federal agencies (in other words, work without pilfering or accepting bribes) can hardly be viewed as lucrative enough to support a lower middle-class family. Meanwhile, the labor market in Moscow offers many opportunities for landing an interesting and well-paying job.

Many would ask, "In current conditions, what could be the motivations for working in the Ministry?" Generally speaking, there are two. Sadly, the first is the ability to use one's position for accepting bribes or dipping into the ministry's cash flow. Indeed, an analysis of the car models standing in front of the Ministry building might prove an indicator of the prevalence of this motivation. It would seem that the official salary might not be enough to cover even the cost of gas (but perhaps it does).

The second reason is the desire to have a more effective role in protecting nature, which is (or at least it used to be) unquestionably easier to do as a government employee. The protected areas department and other divisions of the Ministry of Natural Resources are famed for having exactly this brand of specialists and enthusiasts.

Representatives of the second motivation, who as a rule, are proud and possess competitive professional skills, will find it painful to endure unprofessional management and a disrespectful attitude to their work, especially because these factors will make their work less effective. And because they are professionally adept, at any moment they can find a new place of work where their skills will be in demand, and where their salaries will be no lower, but probably higher. The only remaining question is what the motivations or professional qualifications of those who take their place in the ministry will be. After leaving, the best personnel are generally replaced with either corrupt or, more often, simply weaker and less qualified staff.

The upside of this trend is the unique windfall it has offered to non-governmental organizations. Once accused of housing self-declared experts who understood little about nature protection and less about working with the government, environmental NGOs have suddenly begun recruiting people who used to work in government nature protection agencies. In effect, they are recreating the old State Committee on Environmental Protection and its subdivisions in a non-governmental context. In counterpart, government leaders stand up for the interests of the big oligarchic businesses that grew because of the privatization of natural resources use and try to convince their opponents that the country has no need of these NGOs.

In the new nature protection world currently forming in Russia, the highly qualified and well-trained specialists of the Ministry of Natural Resources will be able to lend their expertise and energies effectively either to non-governmental organizations or to the newly reformed governmental nature protection agencies. Recreating the vertical structure of the ministry will be more difficult. But in the current political climate, it seems like it is of no use to anyone anyway.

Changes in the Ministry of Natural Resources have left zapovednik directors troubled and confused.
Photo by N. Troitskaya.

Evgeny Shvarts *is the Director of Nature Conservation of the Russian Program Office of the World Wildlife Fund (WWF-RPO).*

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Endangered Ecosystems

An Introduction to Central Asia

Central Asia. *Map by M. Dubinin*

The region known as Central Asia stretches from the Himalayas to the Russian steppes, from the Caspian Sea to the highlands of Tibet. As the crossroads of the Great Silk Road, this region saw the intermingling of cultures for hundreds of years and became a cradle of civilization, leaving achievements in art and architecture, science, philosophy, and literature for centuries to come. Once united under the common flag and language of the Soviet Union, the five nations that comprise Central Asia today – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan – took their first steps as sovereign nations when the Soviet Union collapsed in 1991.

But despite the many shared cultural, historical, and environmental features of these five nations, the vast region is characterized by great contrasts in climate and topography. Endless steppes stretch across central and western Kazakhstan. Sandy deserts cover much of Uzbekistan. The lofty mountains of Tajikistan and Kyrgyzstan have earned them the title "the roof of the world." The region's two largest rivers – the Amu-Darya and the Syr-Darya – form in these highlands, falling westward and slicing through the lowlands of Turkmenistan, Uzbekistan, and Kazakhstan until they empty into the Aral Sea. Lake Balkhash in Kazakhstan and Lake Issyk-Kul in Kyrgyzstan are among the largest lakes of Eurasia.

This diversity of landscapes in turn supports a rich variety of plants and animals. The contact between Asian and Mediterranean flora in Central Asia has created unique plant communities. Temperate forests abound with wild apples, pears, apricots, pomegranates, grapes, almonds, pistachios, and walnuts. Higher flora of the Central Asian region includes 7,000 species; fauna includes more than 900

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species of vertebrate animals, of which there are 172 species of mammals, 540 species of birds, 106 species of reptiles, 14 species of amphibians, and approximately 150 species of fish. More than 20,000 species of invertebrates have been described in the region, but this figure is believed to be only a portion of the actual number. The biodiversity of the region is characterised by the high degree of endemism: in some areas, up to 18-20 percent of higher flora is represented by species with narrow ranges. It was exactly this high level of biological diversity that earned Central Asia's sandy deserts, considered the richest deserts of Asia, recognition of one of the World Wildlife Fund's (WWF) 200 priority ecoregions. The mountains of Central Asia, which include both the Tien Shan and the Pamir Ranges, have similarly been designated among the 200 priority ecoregions.

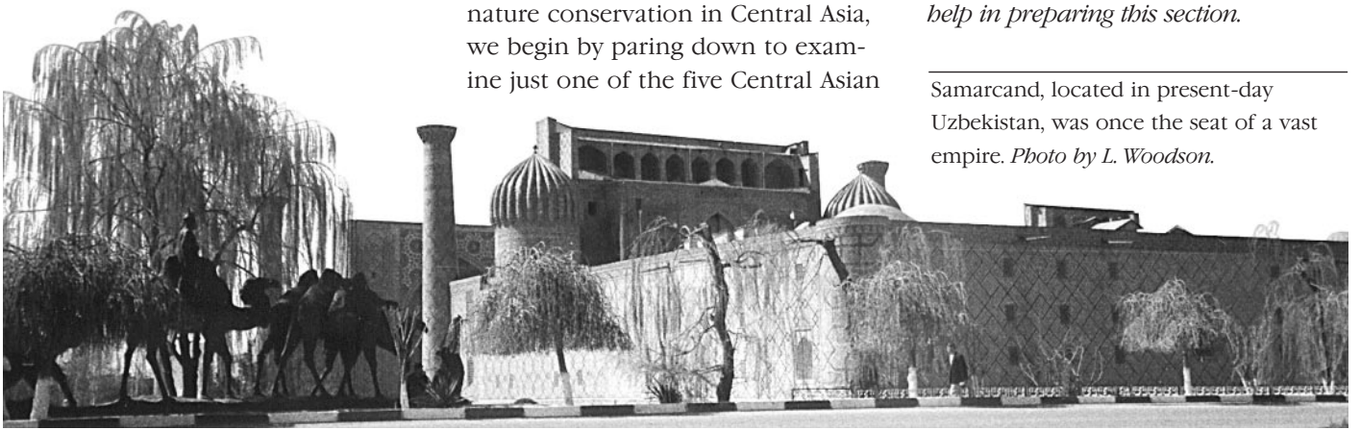
Despite a respect for nature present in the Islamic culture that has shaped much of Central Asia's history, a variety of circumstances has placed these ecosystems under threat. In the middle of the 20th century, Central Asia became subject to unwise agricultural development. The most notorious example is the Aral Sea, which began to dry up when the Amu-Darya and Syr-Darya Rivers were diverted into the desert for irrigation. When combined with rapid population growth in the second half of the 20th century (Central Asia's population is currently estimated at about 44 million), thiskind of short-sighted agricultural development led to the extinction of many species of animals and plants. For example, the Turanian (or Caspian) tiger (*Panthera tigris virgata*) became extinct in the 1950s–1960s, while the populations of Asian cheetah (*Acinonyx jubatus*) disappeared in the 1970s. Many other species currently hang near the edge of extinction, making upcoming years crucial for their conservation.

Lake Sarychelek, Kyrgyzstan, is one of many jewels in the mountains of Central Asia. *Photo by A. Kovshar.*

Nonetheless, as a part of the Soviet Union, Central Asia was also an heir to its remarkable system of protected areas. A total of 33 strict nature reserves (zapovedniks) and 9 national parks protect a broad range of ecosystems and facilitate scientific research on these environments. Following independence from the Soviet Union, however, the financial mechanisms that supported these nature reserves have collapsed, leaving them struggling to support their staff and protect their territories. Moreover, the economic decline of all of the Central Asian nations has pushed environmental protection as a whole to a position of lower priority.

In this special section devoted to nature conservation in Central Asia, we begin by paring down to examine just one of the five Central Asian nations, Uzbekistan, offering a broad overview of its major ecosystems – mountains, desert, and riparian forests – as well as an analysis of the environmental outlook for this nation. Then we take a look at endangered animals in Central Asia as a whole, focusing on two specific species that inhabit the vast dry plains of Kazakhstan, Uzbekistan, and Turkmenistan. Finally, we turn to a case study of a conservation strategy employed to save the Central Asian leopard in one particular region of Turkmenistan. An in-depth review of a region as vast and diverse as Central Asia is beyond the means of a single issue of *Russian Conservation News*, but we hope this special section serves as an introduction to the wonders of this region's wilderness.

Special thanks to ***Olga Pereladova****, WWF manager for Central Asia, for her help in preparing this section.*



Samarcand, located in present-day Uzbekistan, was once the seat of a vast empire. *Photo by L. Woodson.*

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Mountains
The Western Tien Shan

Note from the editors: *The flag of Uzbekistan displays three horizontal bars of light blue, white, and green, representing the landscape of eastern Uzbekistan, which features clear skies, snow-capped mountains, and green plains. Mountains cover nearly 15 percent of Uzbekistan, incorporating portions of two major ranges, the Tien Shan in the east and the Gissar Alai in the southeast.*

By ***Anatoly F. Kovshar***

Seen from above, the jagged peaks of the Tien Shan Mountains appear as sharp white-capped waves that rise in an endless sea across Central Asia, spanning the borders of China, Kazakhstan, Kyrgyzstan, and Uzbekistan. In Chinese, the phrase *tien shan* means 'celestial mountains,' and indeed, these may be the most sublimely beautiful of all mountains in Central Asia. In the last century, Soviet geographers divided the western half of the mountain range into four regions. The westernmost of these regions was named the Western Tien Shan, a mountain system that includes the Talassky Alatau Range of southern Kazakhstan and the ranges stretching to the southwest of it into Uzbekistan and Kyrgyzstan (Chatkalsky, Kuraminsky, Pskimsky, Ugamsky, Kandalasky, and Karzatau). At the westernmost edge of the Karatau Ridge, the Tien Shan Mountains recede into the desert expanses of the Syr Darya River.

Although these mountains began to rise some 400 million years ago, they underwent their most significant transformations during the two most recent geologic periods, making the peaks of the Western Tien Shan relatively young as mountains go. Deep and narrow ravines and canyons marked by terraces wind through many areas. The grandest of these canyons is the Aksu River Canyon in the western extremities of the Talassky Alatau, where for more than 25 kilometers the river has cut through Tertiary conglomerate rock up to 500 hundred meters deep, while the width of the canyon never exceeds one kilometer at the top and only 50 to 100 meters at the bottom.

Beyond its physical beauty, the Western Tien Shan is also rich in natural resources. It is known throughout Central Asia for its many valuable ores: as far back as the 8-th century, local inhabitants mined copper, lead, gold and silver in the spurs of the Chatkal Mountains. Many rivers flow through the Western Tien Shan, ultimately falling into the Syr-Darya River. Indeed, it is because of the abundance of surface water that farming is so well developed in the region. Artificial reservoirs have been built on most of the rivers.

On of the most interesting aspects of the Western Tien Shan is the prevalence of near eastern and Mediterranean features layered upon the Central Asian features typify the eastern parts of the Tien Shan. Much of the flora and fauna of the Mediterranean region actually comes to the eastern end of its range in the Western Tien Shan.

Juniper groves are characteristic of these mountains, comprised primarily of three Central Asian trees – *Juniperus turcestanica*, *J. zeravshanica*, and *J. semiglobosa* – and practically indistinguishable from forests of the more southern Pamiro-Alai Mountains. In most of the region this is the only kind of coniferous forest, and only in the eastern parts of the Talassky and Chatkalsy Ranges are there "typical" Tien Shan species such as stands of Shrenk spruce (*Picea schrenkiana*) sprinkled with a few firs (*Abies semenovi*). The southern slopes of the Chatkalsky, Ugamsky, and Pskemsky Ranges, which are protected from the cold air masses that sweep down from the north, are home to forests of walnut trees (*Juglans regia*), with occasional almonds, cotoneasters, dog-roses, and others fruit and nut trees. A particularly southern type of

Green hillsides line the steep Aksu River canyon in Aksu Dzhabagly Zapovednik in Kazakhstan. *Photo by A. Kovshar.*

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forest is evident in the lower mountains and southern foothills, where thickets of pistachios (*Pistacia verae*) grow. Wild apple (*Malus sieversii, M. kirghizorum*) orchards flourish in low-mountain ravines.

Grassy hillsides that are virtually free of trees, however, are even more common in the Western Tien Shan. In the mountain foothills, this well developed semi-savanna is comprised of bulbous barley (*Hordeum bulbosum*) and stiff-haired wheat grass (*Agropyron trichophorum*); higher in the mountains these plants grow alongside shrubs such as honeysuckle, dog-roses, and almonds as well as orchard grass (*Dactylis glomerata*), ferula (*Ferula genuisecta*), and the umbellifer *Prangos pabularia*. These umbellifer meadows are not characteristic of any part of the Tien Shan except its westernmost sectors.

Containing more than 1,500 species of flowering plants and no less than 7,000 invertebrates, the Western Tien Shan is notably higher in biodiversity than the eastern reaches of the mountain system. Beyond the combination of typical Tien Shan species with elements from the Near East and Mediterranean, there are many species that are endemic to the Western Tien Shan. Perhaps the best example is Menzbier's marmot (*Marmota marmota menzbieri*), whose entire range is limited solely to the mountains of the Western Tien Shan. The flora of the Karatau Range is utterly unique, as more than 25 percent of the species are endemics and relics. Two regions hold famous paleontological sites from the Jurassic period.

To protect this wealth of natural beauty and diversity, several zapovedniks and other nature parks have been founded in the Western Tien Shan. Aksu-Dzhabagly Zapovednik (Kazakhstan), located in the Talassky Alatau, was founded in 1926 as the first zapovednik in Central Asia. Three other zapovedniks have protected this environment for decades: Chatkalsky in Uzbekistan (1947), and Sary-Chelsky (1959) and Besh-Aralsky (1979) in Kyrgyzstan. All three of these are located in various parts of the Chatkalsky Range.

Today the most important environmental problems in the Western Tien-Shan involve maintaining the tenuous hydrological balance at an optimal level and preserving the unique biological diversity of the region. Both of these issues are impossible to resolve without preserving the juniper and deciduous forests, which are directly connected to the water level of the mountain rivers. This problem is made all the more complex by the fact that junipers grow quite slowly, over decades and centuries, and people have yet to learn how to restore them more quickly. It is not enough even to stop the cutting of junipers: they must also be protected from fires and overgrazing. Overgrazing in particular is a problem for its further ramifications, ruining the ground cover in meadow and steppe regions and causing erosion.

The existing zapovedniks are not enough to preserve the region's biodiversity. A system of territories is needed that would integrate multiple functions of protection and natural resource use, a system that would allow the entire rich natural world of the Western Tien Shan to exist without hurting local agriculture. Such may be the only way to save large animals like bears (*Ursus arctos*), snow leopards (*Uncia uncia*), mountain sheep (*Ovis ammon*), and others.

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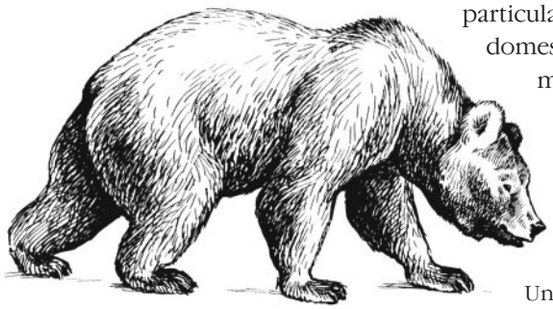
The Tien Shan Bear (*Ursus arctos isabellinus*)

This endangered subspecies is a relative of the Kamchatka and Alaskan brown bears is distinguished by its long white claws. The Tien Shan bears lives in mountain forests, preferring stands of junipers, maples, hawthorns, nuts, and wild apples. In summer it stays in alpine and sub-alpine regions, but throughout the year may complete long journeys from the foothills of the mountains up to the high mountain glaciers in search of food. Favored prey include marmots, pikas, and other rodents. Though its numbers are minimal and the subspecies is listed in the Category I of the CITES Convention, the Tien Shan bear is relatively common in the Uzbek side of the Tien Shan Mountains. The greatest threats to the bear's survival come from habitat destruction, particularly from the grazing of domesticated animals in mountain regions.



Tien Shan Bear (*Ursus arctos isabellinus*). *Reprinted from the* Red Data Book of the Soviet Union, *Moscow 1978.*

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Desert and Semi-Desert
The Kyzyl-Kum Desert

By ***Ekaterina Rachkovskaya***

Spanning an area of 28,000,000 hectares between the Syr-Darya and Amu-Darya Rivers on the east and west, the Kyzyl-Kum Desert is one of the most majestic sandy deserts of Asia. The plains around the disappearing Aral Sea form its northern border, while the ancient Zeravshan River Valley and the foothills of the Nuratinsky Mountains border the desert from the south. Its sands cover much of northern Uzbekistan and stretch into southern Kazakhstan.

Landscapes vary throughout the Kyzyl-Kum Desert, whose name in Turkic languages means "red sands." An ancient plateau of horizontal sediment layers deposited during the tertiary period (65–1.8 million years ago) forms the base of the desert. But since that time, winds and waters have continued to shape the desert, forming ridges and hills, basins and valleys. Alluvial formations tell of the motion of rivers in earlier times. Highly mobile sand dunes ring the edges of the great sandy body. In the central and southern regions, ancient mountains jut into the sky up to 900 meters above the sand, shining with crystalline strata from the Paleozoic Era (544–248 million years ago).

The great size and particular relief of the desert afford significant variation in climate. The northwestern region of the desert is cool, with January temperatures averaging 10-15 degrees Celsius and July temperatures reaching 25. Precipitation falls year-round, totaling about 100–120 mm annually, but is highest in the spring, after the winter snow cover melts. In contrast, the southern part of the desert is hotter and summers drier. The mild winters (–5 degrees Celsius) afford little snow for the region. Annual precipitation varies from 70–125 mm, but falls almost exclusively in winter and spring. Following this colorful and exuberant spring, flora and fauna enter a sort of summer hibernation as temperatures climb above 30 degrees Celsius. In the mountainous regions of the desert, the temperatures are equally warm, but rainfall higher (up to 175 mm).

The long-eared hedgehog (*Hemiechinus auritus*). *Photo by S. Michel.*

The Kyzyl-Kum's flora is rich and unique, comprised of about 900 different plant species. Although far from the most biologically diverse desert in the world (in comparison, the Namib-Karoo-Kaokeveld deserts of southern Africa house around 5,000 plant species), the Kyzyl-Kum's flora is representative of Central Asia. Brush thickets, called desert forests, dominate, especially shrubs or small trees called saxauls. The white saxaul (*Haloxylon persicum*) is most prevalent on sand; the black saxaul (*Haloxylon aphyllum*) on sandy or clay soils near underground water. Other common plants include psammophyte – plants that thrive in sandy soil – shrubs, such as *Calligonum leucocladum*, *C. eriopodum*, and *C. caput medusae*, as well as Richter's saltwart (*Salsola richteri*), firs (*Ephedra strobilacea*), and sand acacia (*Ammodendron conolyi*). The grass-like Carex physodes often forms a thick layer of sod upon the sand. A number of plants sprout and flower for just a brief period of time, dying away in the dry desert heat: *Ferula assa foetida*, *Dorema sabulosum*, *Eremurus anisopterus*, *E. korolkowii*, and several species of tulips (*Tulipa buhseana, T. Lehmanniana, T. sogdiana*). Wormwoods (*Artemisia terrae albae, A. diffusa, A. turanica*) and astragals (*Astragalus villosissimus*) grow in regions where larger shrubs cannot. Salt marshes that lie in desert basins are filled with (*Halocnemum strobilaceum*).

Upon this background, a colorful array of animals fills the desert. Saiga antelope (*Saiga tataricus*) and goitered gazelle (*Gasella subgutterosa*) are native here, as are sand cats (*Felis margarita*) and cape hares (*Lepus capensis*). Wolves (*Canis lupus*), foxes (*Vulpes corsac*), and badgers (*Meles meles*) feed on rodents – ground squirrels, gerbils, and hamsters – which are particularly common in the desert. The saxaul jay (*Podoces panderi*), Houbara bustard (*Chlamydotis undulata*), black-bellied and pintailed sand grouses (*Ptorocles orientalis, P. alchata*), and several eagles (*Haliaeetus leucoryphus, H albicilla*)

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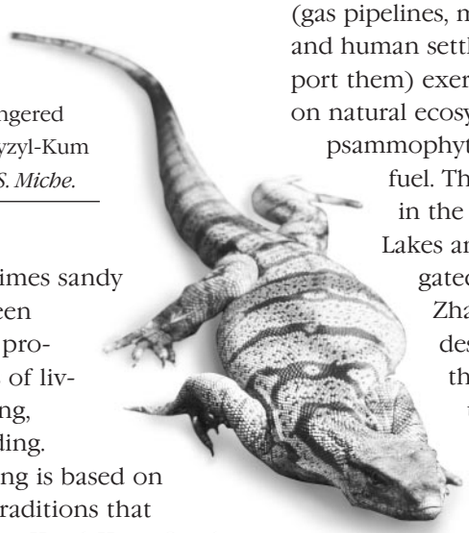
are important avian species. The desert is always alive with multiple lizards of all different forms and colors.



Desert monitor (*Varanus griseus*), an endangered resident of the Kyzyl-Kum Desert. *Photo by S. Miche.*

Since ancient times sandy deserts have been inhabited, first providing a means of living from hunting, then from herding. Nomadic herding is based on centuries' old traditions that developed in the Kyzyl-Kum. Sandy deserts are suitable for grazing sheep and camels year-round. Shrubs provide food in winter, while the tuber *Carex physodes* is edible in all seasons. Nomads call it "hay in the root." In springtime edible annuals and perennials shoot up, while halostachys and wormwoods mature in fall and winter. Bad harvests come once every three to four years, but the desert nonetheless supports many flocks of highly valued species of sheep.

Water is a key problem for the Kyzyl-Kum, limiting the number of herds that may pasture there. The region is rich in deep artesian waters (200–500 m), and recent years have seen many wells dug. Still, estimates show that 30 percent of pastures are completely without water, and that 20 percent lack adequate watering.

In many instances, the region's natural wildlife must compete for land and resources with people and their animals. In the middle of the previous century, intensive use of these lands led to their desertification. In the south, and particularly in low-mountain regions, engineering works (gas pipelines, mines, and the roads and human settlements which support them) exert a large influence on natural ecosystems. Saksauls and psammophyte shrubs are cut for fuel. The pumping of water in the Aidar-Arnasaiskaya Lakes and runoff from irrigated pastures along the Zhana-Darya River destroy pastures, salt the soil, and create unnatural bogs.

And as the processes of desertification and degradation of natural ecosystems progress in the Kyzylkum, there are no comprehensive, adequate measures to address their root causes. Indeed, there is hardly even a system of protected areas to ensure the survival of at least pieces of these ecosystems. Not a single zapovednik lies within the Kazakh side of the Kyzyl-Kum; in Uzbekistan there is only one. Kyzylkum Zapovednik, located on the forested banks of the middle Amu Darya and the outlying desert, covers a mere 6,000 hectares. Preserving the biological diversity of the region requires establishing a more comprehensive system of protected areas, but people need the region's natural resources for their own survival. In the future, people must find a way to use these resources in a sustainable way. One plan currently under advisement involves creating a biosphere reserve that incorporates part of the sandy desert, the central part of the Nuratinsky Mountains, and the Aidar-Arnasaysky Lakes. This reserve would promote sustainable land use and set off special sections of land as strictly protected areas, a promising compromise in a difficult situation.

Resources

Questions on the geographic regions of Central Asia and Uzbekistan. Tashkent, 1964. In Russian.

Atlas of the Kazakh SSR. A.M. Kunaev, ed. Moscow, 1982. In Russian.

Map of the Vegetation of Kazakhstan and Central Asia. Moscow, 1995. In Russian.

Ekaterina Rachkovskaya *is a Doctor of Biological Sciences and Head of Science at the Envirc Ecological Research Center, Almaty, Kazakhstan.*

Brush and shrubs are part of a healthy dry savannah in the Kyzyl-Kum. *Photo by L. Woodson.*

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The Tugai Forests
The Amu-Darya Delta

Rivers that cut through the dry steppes and deserts of Central Asia bring life to these otherwise arid lands, allowing unique forest complexes called *tugai* to grow up in desert flood-plain areas. A word of Turkic origin, tugai (pronounced too-gah-YEE) refers mainly to forested areas, but in ecological terms is actually a more complex system incorporating the transition from open water to sand or mud banks and shoreline, reed formations, dense gallery forest, fringe shrub, and finally desert. This diversity of habitats is matched by a corresponding diversity of flora and fauna, including a number of species or subspecies that are restricted only to tugai habitats and are entirely endemic to limited areas of Central Asia.

Stretching in green, snake-like bands through the desert, these ecosystems were once widely spread in Central Asia but now remain only as fragments within the basins of the rivers Atrek, Murgab, Tedgen, Tarim, Chu, Ili, Zeravshan, Syr-Darya and Amu-Darya. Some relatively intact tugai areas still exist, such as 21,000 hectares of rich tugai forests in and around Tigrovaya Balka Zapovednik in Tajikistan. Similarly, riparian forests along the Syr-Darya River, which flows through Kazakhstan, have remained in comparatively good health, largely owing to the excess of arable land: there was simply little need to cut down riparian forests. Indeed, the vast steppes of Kazakhstan afforded so much room for agriculture that in earlier days the republic grew enough wheat not only for its own needs, but also for much of the Soviet Union.

The situation was different, however, in Uzbekistan, where a lack of arable land propelled the destruction of tugai to make land available for agriculture. The diversion of the Amu-Darya River to support agriculture in this desert country caused further decline of tugai forests and led to the desiccation of the Aral Sea. By 1998 the tugai covered barely 10 percent of the area they had covered along the Amu-Darya just 40–50 years ago. The most extensive remaining areas, which in total cover about 30,000 hectares, are located in the delta of the Amu-Darya River in the Southern Aral Sea. Even though these forest complexes are heavily fragmented, they constitute an estimated 75 percent of all the tugai remaining in Uzbekistan.

A Bukhara deer (*Cervus elaphus bactrianus*) reaches up for fresh leaves. *Photo by O. Pereladova.*

The high level of biological diversity in the tugai ecosystems makes them a priority for conservation. In Uzbekistan this is particularly true of the Amu-Darya delta, where tugai formations are among the oldest, most dense, and most diverse. Reed communities (*Phragmites sp., Typha sp.*) characterize the transition from open water to sandy or muddy banks. Dense forests dominated by poplars (*Poplus sp.*) and willows (*Salix sp.*) form the next stage, followed by tamarisk shrubs (*Tamarix sp.*), and the sedges (*Carex sp.*) and saksaul (*Haloxylon sp.*) that characterize the surrounding desert. Numerous plant species are listed in the World Conservation Union (IUCN) book of endangered species: several members of the buckwheat family (*Calligonum paletzkianum*, *C. elegans*, *C. matteianum*), as well as *Cousine strobulocephala*, *C. sogdiana*, and *Tithymabus scerocyathium*. Though already extinct from the Amu-Darya delta, oleaster (*Elaeagnus ongustifolia*) is an important component of the riparian forests in the middle and upper regions of the Amu-Darya, and in some areas – especially in the Zeravshan valley – thickets of sea-buckthorn (*Hippophae sp.*) are typical.

This diversity of flora hosts a similar diversity of animal life. The tugai forests of the Amu-Darya delta contain 28 species of mammals, 58 species of reptiles, 91 species of birds, and 26 species of fish. The highly endangered Bukhara Deer (*Cervus elaphus bacrianus*), which numbers less than 400 individuals in the wild, makes its home in tugai forests, and the endangered goitred gazelle or djeiran (*Gazella subguttarosa subguttarosa*) regularly wan-

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ders into the tugai from its home in the surrounding deserts. Other mammals include the gray wolf and golden jackal (*Canis lupus*, *C. aureus*), red and corsac foxes (*Vulpes vulpes*, *V. corsacs*), several wildcats (*Felis chaus*, *F. margarita*, and *F. silvestris ornata*), the Eurasian badger (*Meles meles*), indian porcupine (*Hystrix indica*), and numerous rodents.

These wetlands also support a vast diversity of avian life for birds that nest in or migrate through Central Asia. These include the rare Khiva pheasant (*Phasanicus colchicus chroysomeles*) as well as numerous globally important migratory birds that are drawn to the region's flowing water, reeds, and sand or mud banks, such as the Dalmatian pelican (*Pelicanus crispus*), white-headed duck (*Oxyura leucocephala*), marbled teal (*Marmaronetta angustirostris*), and Ferruginous duck (*Aythya nyraca*).

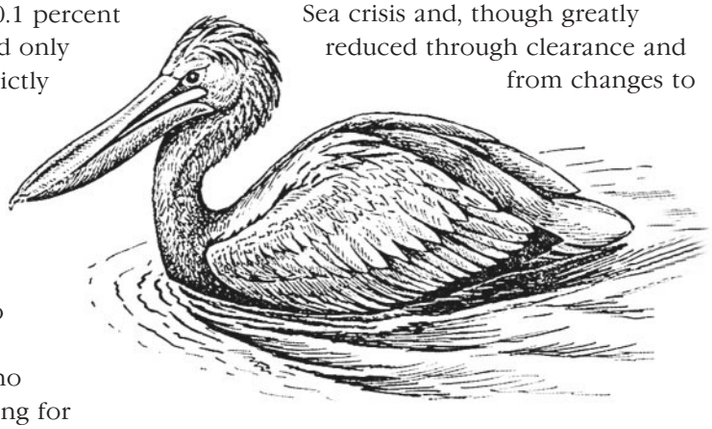
Many fish and reptiles are endemic to the area. The gray monitor lizard (*Varanus griseus*), Central Asian tortoise (*Agryionemys horsfieldi*) and the snake Rhynococephalus rossikovi are particularly important for their global biodiversity conservation value. Shovel-nosed sturgeons (*Pseudoscarphihynchus hermani*, *P. Kaufmanni*) are critically endangered, and a number of fish in the carp family (*Cyprinidae*) are endemic to these waters. Fishes such as the pike-perch (*Lucioperca lucioperca*), bream (*abramis brama orientalis*), barbell (*Barbus brachycephalus*), and roach (*Rutilis rutilis aralensis*), which disappeared from the Aral Sea in the early 1980s when salinity rose beyond their ability to adapt, now survive only in the Amu-Darya and Syr-Darya's deltas.

As noted earlier, the underlying causes of ecological decline in the area date back to inappropriate irrigation and land use during the Soviet Era. These are now being addressed by large-scale international, national and regional efforts, such as the Aral Sea Basin Programme, a joint project of the World Bank, United Nations Development Project (UNDP), United Nations Environment Project (UNEP), and Global Environment Facility (GEF). The collapse of the Soviet Union and the emergence of an independent Uzbekistan, however, have spawned a number of additional threats which must be countered if the global biodiversity value of the area is to be conserved.

These new threats are principally related to the economic decline brought about by the difficult transition to a free market economy. Rural populations often overuse the remaining natural and semi-natural areas for grazing, fuel wood, hunting, and other purposes. Restricted government budgets have loosened state controls over resource use as well as undercut government ability to carry out conservation activities. Meanwhile, the protected areas system in Karakalpakstan (the autonomous republic in the northwestern Uzbekistan most affected by the Aral Sea crisis) is totally inadequate both in terms of size and ecosystem coverage with less than 0.1 percent of land area and only one ecotype strictly protected. And even to this day, water management plans rarely give adequate weight to environmental concerns, and no strategic planning for biological resources conservation and use has as yet been attempted in Karakalpakstan.

Nonetheless, though the area sustained a high level of ecological damage in the past, including the degradation of the Aral Sea ecosystem and damage to the surrounding delta and deserts, the situation has begun to stabilize and major national, regional, and international efforts to redress the key causal factors have begun. The Government of Uzbekistan has formally recognized tugai as an important biological, socio-economic, and cultural resource whose conservation is necessary for the sustainable development of the region. A current UNDP project is focused on securing the conservation of the unique tugai forests in the Southern Aral Sea region by establishing an extensive conservation management system. Lessons learned during the project are intended to be replicated within other tugai areas of Central Asia including, if feasible, the Vakhsh and Piandzj River valleys in the upper Amu-Darya watersheds in Tajikistan.

Moreover, the desiccation of the delta and Aral Sea did not have an equal impact on all areas of the region. For example, most of the valuable desert ecosystems to the west remain relatively unaffected by the direct impacts of the Aral Sea crisis and, though greatly reduced through clearance and from changes to



Dalmation pelican (*Pelicanus crispus*). *Illustration reprinted from the* Red Data Book of the Soviet Union, *Moscow 1978.*

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the flood patterns and river water availability and quality, some tugai forest still survive in significant areas along the Amu-Darya River and its delta. Thus there is still a viable opportunity to conserve and restore the unique and globally important tugai biodiversity of the region.

This article was compiled from materials provided by the ***United Nations Development Project (UNDP)*** *office in Tashkent, Uzbekistan. Additional commentary provided by* ***Olga Pereladova****, Central Asia Manager for the World Wildlife Fund.*

Saving an Endangered Deer

Riparian forests are the natural habitat of the highly endangered Bukhara deer (*Cervus elaphus bactrianus*). From its origin a sedentary and small-numbered subspecies, the Bukhara deer had diminished greatly in both population and range by the 1970s and 1980s. By the end of the 1980s the species numbered no more than 900 animals in the wild, including about 600 animals in natural populations, and 300 in artificially created populations. With funding from the Netherlands, the World Wildlife Fund (WWF) started a Bukhara deer restoration project in 1998. At that time about 350 deer remained in the entire area, with the majority of small natural populations residing in the Amu Darya valley in Uzbekistan and Turkmenistan facing common threats: destruction of habitat, unexpected floods, and poaching.

One of the first steps was aiding existing nature reserves in their efforts to protect the bukhara deer. Several nature reserves with Bukhara deer habitats – Amu-Darya Zapovednik in Turkmenistan, Kyzylkumsky and Badai-Tugai Zapovedniks in Uzbekistan, and Tigrovaya Balka Zapovednik in Tajikistan – were outfitted with field equipment, including uniforms, gasoline for conducting patrols, binoculars, cameras, bicycles, motors for boats, and other essential supplies. The project also provided forage for feeding animals. A special order Gosbiokontrol, an agency of the State Committee for Nature Protection, created a special inspection patrol for the entire Amu-Darya basin.

Special work has also been done to advance deer restoration. Scientists have carried out inventories of riparian forests of the region and identified areas suitable for deer reintroduction.

The Zeravshansky Zapovednik staff have built a system of pens to house six deer transferred to the zapovednik from other reserves. Since then the population in Zeravshansky Zapovednik has grown to 14 deer, and the first group is already being prepared to be set free into the tugai. Another reintroduction site has been chosen in Kazakhstan, along the Syr-Darya River. These measures are all accompanied by educational and public awareness activities.

Much more work (and funding) is still needed to develop a transboundary network of protected areas in riparian forests along the Amu-Darya River, and special measures are needed to repair environmental degradation in Tigrovaya Balka Zapovednik. Nonetheless, efforts to save the Bukhara deer have already had significant results. The populations in Uzbekistan have stabilized, and are even growing; in Turkmenistan, they are seriously increasing. The global population of this rare deer is now estimated at about 550 animals, versus 350–450 just three years ago, and many people living in Central Asia now recognize the Bukhara deer as a national treasure of global importance.

Bukhara deer in an enclosure in Zeravshansky Zapovednik.
Photo by O. Pereladova.

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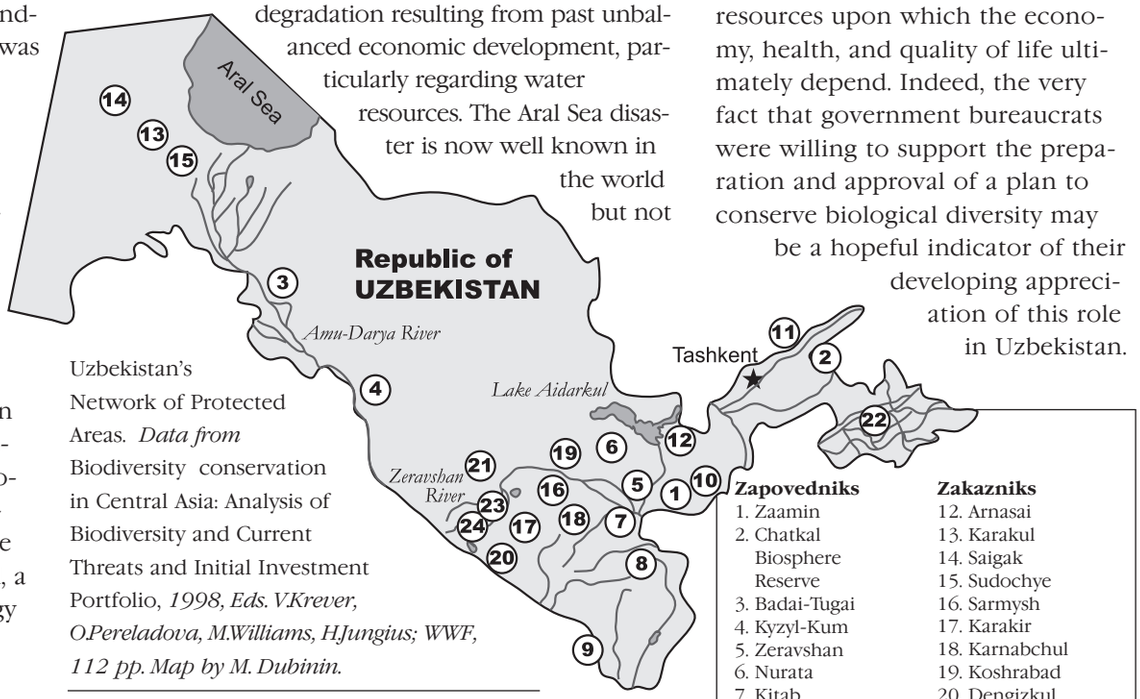
Biodiversity Conservation Planning in Uzbekistan

*By **Mark Anstey***

Despite the normal reputation of the first day of April, April 1st, 1998, should be a day remembered as a turning point for conservation in the new independent Uzbekistan. It was the day on which Uzbek President Islam Abduganiyevitch Karimov personally approved the Uzbekistan National Biodiversity Conservation Strategy and Action Plan. Assessing tangible change in biodiversity conservation since that date is difficult: after all, a biodiversity strategy and action plan (BSAP) is a long-term policy and planning tool, and the initial four years is a short period in its life. This fact is all the more true given the overall complexity of issues and difficulties facing a country such as Uzbekistan, which is struggling to make the transition to an independent, democratic and prosperous nation. Nonetheless, the birth of a process can sometimes be indicative of where it may be going and the kind of route it will take to get there. For this reason, a cursory, and, I hasten to add, entirely personal review of the BSAP and its implementation at this stage in its life may not be without some value.



Uzbekistan's Network of Protected Areas. *Data from* Biodiversity conservation in Central Asia: Analysis of Biodiversity and Current Threats and Initial Investment Portfolio, *1998, Eds. V.Krever, O.Pereladova, M.Williams, H.Jungius; WWF, 112 pp. Map by M. Dubinin.*

Zapovedniks
1. Zaamin
2. Chatkal Biosphere Reserve
3. Badai-Tugai
4. Kyzyl-Kum
5. Zeravshan
6. Nurata
7. Kitab Geological Reserve
8. Gissar
9. Surkhan

National Parks
10. Zaamin
11. Ugan-Chatkal

Zakazniks
12. Arnasai
13. Karakul
14. Saigak
15. Sudochye
16. Sarmysh
17. Karakir
18. Karnabchul
19. Koshrabad
20. Dengizkul

Natural Monuments
21. Vardanzi
22. Yazyavan

Breeding Centers
23. Djeiran Ecocenter
24. Karakul

The BSAP was specifically designed for local and regional conditions in Uzbekistan. In its economic, social, and political context, Uzbekistan shares many features with its neighboring republics. Two major exceptions to this rule are Uzbekistan's substantially higher population density and the magnitude of environmental degradation resulting from past unbalanced economic development, particularly regarding water resources. The Aral Sea disaster is now well known in the world but not perhaps, well understood. It is hard to appreciate in full either the depth of the continuing degradation or the extent to which its causes remain intrinsic parts of the existing economic and social structure. The roots of the Aral's death lie in an economic system built over 40 years of monolithic and flawed development, and that system still permeates and molds the structures and approaches used to manage almost all land and water resources today. To change such a system and move the economy onto a more diverse and sustainable level is not only extremely difficult, but also full of economic and social risks: it is literally a matter of national survival. This fact may explain the slow progress of reforms, which many outsiders find hard to understand. Everyone understands, however, that reform must happen, and happen at a faster pace, if the environmental burden is not to erode the nation's long-term chances of development and prosperity. Biodiversity conservation represents the "first line of defense" against the further degradation and collapse of ecological conditions, as well as the provision of key natural resources upon which the economy, health, and quality of life ultimately depend. Indeed, the very fact that government bureaucrats were willing to support the preparation and approval of a plan to conserve biological diversity may be a hopeful indicator of their developing appreciation of this role in Uzbekistan.

The BSAP contains three broad thematic areas: the Protected Areas System; Public Awareness, Participation and Education; and Sustainable Use of Biological Resources. The authors of the BSAP assigned Protected Areas priority for the initial 10-year planning period because of the need for immediate action to stay the rapid loss of biodiversity, to address urgent problems facing protected areas management, and to take advantage of the current momentum for reform in Uzbekistan.

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The other two themes, though recognized as vital components of the long-term success of the BSAP, require further evaluation and assessment, and ultimately simply more time to achieve success.

The Pamir argali mountain sheep (*Ovis ammon polii*). *Photo by S. Michel.*

At independence this protected areas system was a product, on the one hand, of the long and honourable Soviet tradition of zapovedniks, and on the other hand, of former development policies that undervalued the importance of environmental protection. Having been both marginalized and artificially supported for decades, the protected areas system was ill-adapted to face the challenges brought by the collapse of the Soviet system and the transition to a new political and economic future. To this day it has many fundamental limitations, and has been insufficient to prevent the serious decline in biodiversity that Uzbekistan has undergone in the past 30 years.

In response to these problems, the BSAP supports securing and expanding the protected areas system. But in order to do this, the protected areas system must adapt to new socio-economic and political realities. In other words, it must begin to justify its cost (both in budget and in exclusion of land from other use) by providing clear benefits for national sustainable development and limit these costs by providing economic and social benefits to citizens of the republic, particularly those living in or around protected areas. It must also ensure the conservation of biodiversity and natural landscapes for future generations. On this basis, the BSAP outlined a five-year plan of action for the protected areas system including its review, reorganization and expansion. Guiding principles and targets during this process were to include using an ecosystems approach to recreate the protected areas system, expanding protected areas to cover a minimum of 10 percent of the total land area of Uzbekistan, and using an integrated "mixed use" approach to protected areas expansion and development.

An honest appraisal would show that few of the BSAP's plans have been achieved so far: there has been no dramatic change in the fortunes of the protected areas and level of support for conservation efforts since 1998. Indeed, it would have been unrealistic to expect such. More interesting is to examine whether or not there have been some steps at least in the right direction, and to assess the significance of those steps.

Surely there have been disappointments, and probably the most significant of these relates to the National Biodiversity Commission. A major aim of the BSAP was to establish this multi-sectored and high-level body to ensure that there was a real force within the state structure committed to overseeing and driving actions forward. A resolution of the Cabinet of Ministers created the commission, but was dismantled shortly afterwards. Responsibility for overseeing and ensuring the BSAP's implementation now lies principally on the shoulders of the State Committee for Nature Protection, which, though willing and committed, does not possess the same level of influence and political clout. The loss of this driving force, combined with an insufficient allocation of additional financial resources, is probably a major reason that a considerable number of the items scheduled in the action plan have not been pursued. Thus the Action Plan is not being implemented as an integrated set of activities but rather in bits and pieces, which reduces its effectiveness.

On the positive side, however, there have been notable advances. Gosbiokontrol, the unit within the State Committee for Nature Protection responsible for biological resources, has shown commendable commitment in pushing some key steps through. For example, thanks to this agency's great persistence Uzbekistan is now a member of the RAMSAR Convention. This membership should significantly increase the importance placed on Uzbek wetland ecosystems and help ensure that water management plans start to incorporate their value. Gradual inclusion into the wider international conservation community through attending meetings, regional initiative workshops, etc., is building both a better understanding of conservation experience elsewhere and the means by which to participate more fully in that community. Through increasingly effective dialogue and cooperation with international donor organizations, Gosbiokontrol and, to a lesser extent, the Department of Forestry have managed to develop and secure technical assistance and financing for a number of important projects. One of these projects, establishing the Nuratau-Kyzylkum Biosphere Reserve (UNDP/GEF), is intended to test and demonstrate new approaches to conservation through the development of large-scale, integrated conservation and rural development initiatives.

The upcoming five-year review of the BSAP offers the opportunity to learn from these initial steps, both the disappointing and the promising. Certainly the plan must be made less ambitious and more realistic. Some actions and developments are simply not viable in the timeframe or scope of the current document. For exam-

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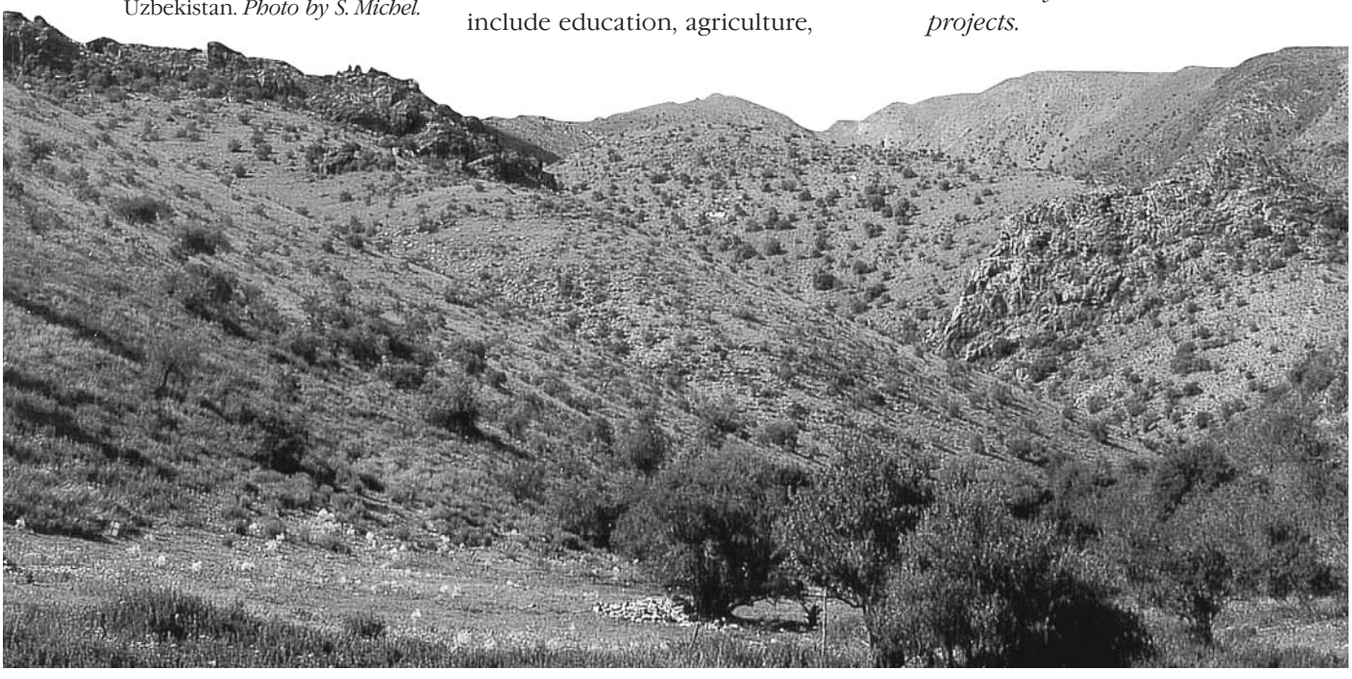
ple, in retrospect it is clear that the goals for reviewing, reorganizing, and expanding the system of protected areas during the first five years were overly ambitious. The review of protected areas alone, if done properly, would be better suited to this timeframe.

A second critical issue to consider during the BSAP review is financing. To ensure that the BSAP was approved without substantial delay, its authors did not secure the necessary funding ahead of time. Not surprisingly, to my knowledge only one specific budgetary allocation for the implementation of BSAP activities (beyond the normal state allocation for conservation) has been made thus far, and this was while the National Biodiversity Commission was still in existence. Unless additional state budget funds can be identified and committed, there is little likelihood that key components of the plan will ever come into being. At the same time it would be helpful to identify other sources of financing for the BSAP so that the government can see that it will not be bearing the entire costs alone but rather would be contributing a secure, long-term base around which other funds can coalesce. For example, a fairly solid list of existing future commitments by the major interested donors such as United Nations Development Project, World Bank, and World Wildlife Fund would show both the extent of future help as well as critical gaps in outside support that the state should fill. In addition, the protected areas themselves must begin generating their own supplemental funds (from fines for illegal activity, controlled use, etc.).

Finally, it will be essential to look again at the institutional structures responsible for overseeing and implementing the BSAP. The gap left by the unfortunate demise of the National Biodiversity Commission must be filled by a new mechanism with more chance of survival but sufficient influence to be useful. The counterproductive division of responsibilities between the State Committee for Nature Protection and the Department of Forestry must be addressed. The number of institutional actors should also be broadened to include education, agriculture, water management bodies, etc., and each should be given clearly specified responsibilities for carrying out relevant pieces of the BSAP.

Ultimately when (or should I say *if*) the scheduled review takes place next year, it should be honest and constructive, recognizing faults with the existing BSAP, accepting failures to act or support adequately, and changing the BSAP to make it more realistic without sacrificing the original aims. After all, a plan is just a plan, and good or bad it only works if those involved are actually committed to making it work. A strategy and action plan is not the say all and end all of biodiversity conservation for any country, but it can lay out important steps in the right direction. If a sensible review and revision takes place then I think this in itself will have been an important result which will greatly brighten the prospects of the BSAP succeeding in the long term to make a difference.

Mark Anstey *has worked for a number of years as an adviser to the United Nations Development Program (UNDP) in Central Asia on biodiversity conservation issues and projects.*



The southern Nuratau mountains of Uzbekistan. *Photo by S. Michel.*

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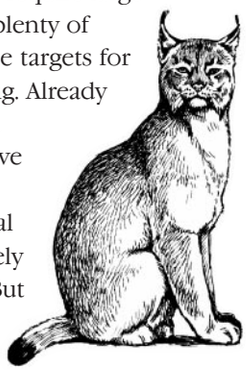
Endangered Species

Endangered Animals in Central Asia

At the crossroads of deserts, steppes, mountains, and wetlands, Central Asia holds a wealth of species diversity, including thousands of plants and animals found nowhere else in the world. Many of these species are currently considered rare or endangered. Hunting and poaching, combined with agricultural development that drastically altered the landscape, have put significant pressure on many populations of animals.

Barbary falcon (*Falco pelegrinoides*).

Large mammals – and especially large predators – have already won considerable fame as endangered species. In many cases they require large territories with plenty of food, and may be targets for big game hunting. Already the cheetah and Caspian tiger have both become extinct in Central Asia, owing largely to habitat loss. But today not only large animals, such as leopards, but even small animals, even insects, require human attention.



Turkestan lynx (*Felix lyns*).

Providing the necessary attention to these species has become five times as complicated in the past decade, however, as the breakup of the Soviet Union turned a unified Central Asia into five sovereign nations, each with its own problems and priorities. The different nations have taken varied courses to pursue (or not pursue) environmental protection, and similarly have varied ideas on natural resource use. Nonetheless, animals rarely respect these borders, traversing them without heed to passports or visas. Part of the challenge for saving Central Asia's wildlife is developing a trans-national protection strategy that will ensure the survival of those species that travel across international borders.

Tien-Shan argali (*Ovis ammon karelini*).

The following two articles highlight two endangered species, the djeiran (*Gasella subgutturosa subgutturosa*), a kind of antelope, and kulan (*Equus hemionus onager*), a wild donkey. Both of these ungulates inhabit arid regions of steppe and semi-desert and face extinction for similar reasons. In the upcoming pages, we invite you to tread a little deeper into these animals' stories as we examine the two species in greater depth.

Otter (*Lutra lutra seistanica*).

All illustrations reprinted from the Red Data Book of the Soviet Union, *Moscow 1978.*

A short list of Central Asia's most critical species

Mammals
- Snow leopard (*Uncia uncia*)
- Tien-Shan argali (*Ovis ammon karelini*)
- Menzbier's marmot (*Marmota menzbieri*)
- Otter (*Lutra lutra seistanica*)

Birds
- Barbary falcon (*Falco pelegrinoides*)
- Saker falcon (*Falco cherrug*)
- Bearded vulture (*Gypaetus barbatus*)
- Egyptian vulture (*Neophron percnopterus*)

Reptiles
- Cliff racer (*Coluber rhodorhachis*)
- European legless lizard (*Ophisaurus apodus*)

Insects
- *Agrodiaetus magnificus*
- *Athamanthia infera*
- *Calosoma sycophanta*
- Clouded yellow butterfly (*Colias draconis*)
- Apollo butterfly (*Parnassius apollo*)

List courtesy of ***Anatoly Kovshar***

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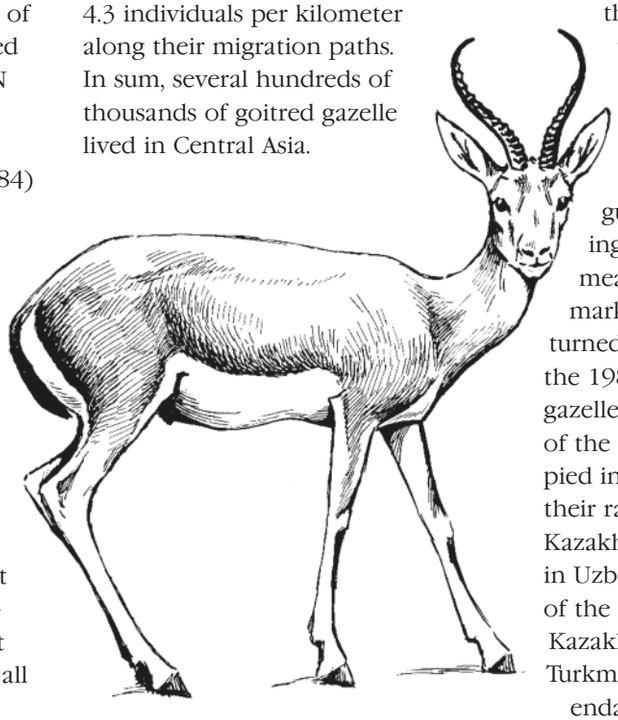
The Goitred Gazelle in Central Asia

By ***Olga Pereladova***

The goitred, or Persian gazelle (*Gazella subgutturosa subgutterosa*), known also as the *djeiran*, is an inhabitant of desert and semi-desert landscapes, and the only true species in Eurasia of a varied family of gazelles which live mainly in Africa. For a number of reasons including competition from cattle and sheep, as well as overhunting and poaching, several subspecies of the gazelles *G. subgutterosa* are endangered throughout Asia. One of the subspecies, *G. s. marica*, is listed in the Red Data Book of the IUCN (IUCN, 1978, 1992); another, *G. s. subgutturosa*, is listed in the Red Data Book of the USSR (USSR, 1984) and Red Data Books of all of the Central Asian and Caucasus republics where the species is found.

Although the goitred gazelle is considered merely a subspecies of *Gazella subgutturosa*, physically it is very different from all other species of the genus *Gazella*. The goitred gazelle is the only gazelle whose females do not have horns, excluding rare exceptions. Males normally weigh about 30 kilograms, versus about 20 for all others, and there are other differences as well. Scientists hypothesize that these characteristics are special ecological adaptations: the goitred gazelle is the only gazelle species that must survive in a continental climate with long periods of negative temperatures.

Until recently this species ranged throughout practically all the deserts and semi-deserts of Asia and was a common game animal. Gazelle remains found in archeological excavations from various periods all over Central Asia testify to the fact that people have hunted gazelles for centuries. Throughout most of history, this hunting was sustainable: as recently as the 1930s and 1940s the number of goitred gazelle was still rather high. In Eastern Transcaucasia about 6,000 gazelles lived on an area of approximately 800,000 hectares from 1937 to 1940. In Central Turkmenistan the density of the goitred gazelle population in the beginning of the 1930s reached 2 to 4.3 individuals per kilometer along their migration paths. In sum, several hundreds of thousands of goitred gazelle lived in Central Asia.



Goitered gazelle (*Gazella subgutterosa subgutterosa*). *Illustration reprinted from the* Red Data Book of the Soviet Union, *Moscow 1978.*

Theoretically, competition from domestic livestock is not a limiting factor for gazelles. Research has shown that the gazelle prefers feeding on plant species which are quite different from those which sheep and goats prefer. Moreover, gazelles can regularly feed on plants that are poisonous to sheep. Problems arise only in the availability of watering places, which are limited in some areas. In the vast majority of cases the problem is not the amount water itself, which is usually plentiful enough for both wild and domestic ungulates, but in the fact that these watering places are the "hot spots" where hunters wait for and kill gazelles.

As long as farmers, shepherds, and other local people were hunting gazelles for the needs of their family, the hunting was sustainable: the species thrived. But when large-scale poaching enterprises began, in which people hunt at night using bright lights, vehicles, and heavy guns with the intention of selling large quantities of gazelle meat to the commercial meat market, this sustainable hunting turned into a bloody slaughter. By the 1980s and the early 1990s, the gazelles inhabited only 0.3 percent of the area they had previously occupied in Caucasus and Tajikistan, and their ranges had been halved in Kazakhstan and reduced even more in Uzbekistan and Turkmenistan. All of the populations living in Kazakhstan, Uzbekistan, and Turkmenistan became seriously endangered. For example, in Kazakhstan the total population decreased from 200,000 head in 1930 to 15,000 in 1990. Some individual populations survived thanks to various types of nature reserves, such as Tigrovaya Balka Zapovednik in Tajikistan (a few dozen animals are essentially last in the country), Kapchagai (now Altyn-Emel National Park) in Kazakhstan, Badhyz Zapovednik in Turkmenistan, and the Djeiran Ecocenter, a special gazelle nursery in Uzbekistan.

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Fortunately for the species, these animals naturally live in relatively small groups, do not have any areas or migration routes of high concentration. Instead they are widely dispersed throughout millions of hectares of suitable habitats. Thus even during the period of the highest anthropogenic pressure, some gazelle populations survived in deserts far from human settlements and in areas with rugged, inaccessible landscapes. But gazelles have become practically extinct in flat areas in regions with comparatively high human population density. In such areas, wildlife can be reintroduced only if the forces which probably caused the decline of the gazelles are eliminated, and only if the group of animals released is numerically strong.

To reestablish the goitred gazelle in its native area, captive breeding centers were created. The first and the largest of them was the Bukhara Breeding Center (today called the Djeiran Ecocenter), founded in central Uzbekistan on an area of 5,126 hectares. Beginning with less than 50 hand-reared animals, the population of gazelle in the center reached a maximum of 1224 individuals in 1989, and has since declined to around 800 animals. A different strategy was chosen in Turkmenistan, where animals from Badkhyz Zapovednik were relocated to Ogurchinsky Island in the Caspian Sea, using the sea's waters as a natural fence.

Although there has been no census of the gazelle in Central Asia for many years, data exist for some protected areas, and expert have estimated the condition of populations in several countries. The fate of the gazelle in the past ten years after the breakup of the Soviet Union has been largely dependent on national agriculture and wildlife management. In Kazakhstan, for example, the number of goitred gazelles increased in Altyn-Emel National Park from 3,000 in 1990 to 7,000 today. The number of livestock in Kazakhstan decreased by approximately 90 percent after the state collective farm system dissolved and the livestock were slaughtered and sold for meat. As a result, the vast steppes of Kazakhstan once more became free for gazelles. At the same time, both gas and ammunition became very expensive, making the cost of hunting prohibitive for most local people, and thereby offering a window for restoring the goitered gazelle's numbers and habitats.

The situation is very different in Turkmenistan, however, where the sheep from collective farms were distributed as private property, benefiting local people, but not necessarily the gazelles. The new pasturing pressure on formerly undisturbed ecosystems has increased significantly, accompanied by three subsequent dry springs and summers. Even in Badkhyz Zapovednik, a strictly protected area, the population of gazelles has fallen from many thousand to less then 1,000 individuals. As with another Central Asian ungulate in the region, the kulan, poaching has been a significant factor in the population's decline. On the other hand, the recent economic improvement in the country, and general attention to nature conservation both on behalf of the government of Turkmenistan, and in the frame of international projects, have opened the way for gazelle's restoration in at least some areas.

Today reintroduction takes place only in Uzbekistan, using animals from the Djeiran Ecocenter, but this work requires much more funding than the Government can currently provide. Large-scale work to reintroduce gazelles is important especially in the area surrounding the Aral Sea, which primarily constitutes newly developed deserts. In this circumstance, the main reason for reintroduction is not so much to save the species itself, but to rehabilitate degraded ecosystems. Research in Repetek Zapovednik in Turkmenistan and in the Djeiran Ecocenter in Uzbekistan show that gazelle's grazing exerts a positive influence on vegetation development. Moreover, the absence of ungulates in sandy deserts leads to formation of a solid crust on the surface of the soil, especially in case of high salinity, which is true around the Aral. Vascular plant seeds are unable to sprout through this crust, leaving a cover of black moss to develop that prevents the normal development of an ecosystem. Even the moderate grazing pressure of domestic sheep is much better for ecosystems than the complete absence of ungulates, but the influence of gazelles is the most natural and appropriate solution.

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Dr. Olga Pereladova *is Manager for Central Asia of the World Wide Fund for Nature's Russian Program Office (WWF-RPO).*

Goitred gazelle.
Photo by O. Pereladova.

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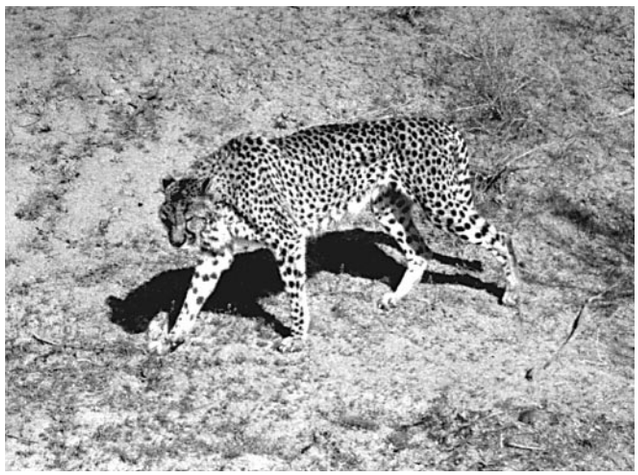
A Closer Look at the Djeiran Ecocenter

Beyond the oasis city of Bukhara, the desert stretches endlessly in all directions, barren and coated with a snow-like layer of salt. Though more than 400 kilometers southeast of the Aral Sea, environmental degradation is as endless as the horizon. But 42 kilometers south of Bukhara, the scenery suddenly changes behind a two-meter high chain-link fence, where the desolate landscape gives way to a healthier desert savannah. This is the Djeiran Ecocenter, a special center for breeding and raising endangered desert animals, in particular, the goitred gazelle, or djeiran.

On paper, breeding animals for reintroduction to the wild may sound like a straightforward conservation strategy, but when brought to life, a score of complicated questions demand attention. How does one go about raising and caring for a herd of endangered gazelle? How much space do they need? How will they find food? What provisions do they need? How will the herd develop without predators? And, perhaps most critically, what must be done to prepare animals born in captivity to be released into the wild? With these and other questions in mind, the dedicated staff of the Djeiran Ecocenter – earlier called the Bukhara Breeding Center – set to work in 1977 to study and save this endangered gazelle.

From the moment that the first goitred gazelle was released in the 5,000-hectare enclosure, scientists have maintained constant monitoring over the herd while allowing the gazelles to live in semi-wild conditions. Over its 25-year history, the center has had remarkably successful work, building the herd size to several hundred gazelle and releasing about 250 into the wild in protected areas of Central Asia. Other endangered species, such as the kulan (*Equus hemionus*), Przewalski's horse (*Equus caballus*), and dzhek bustard (*Chalmydotis undulata*), have been introduced into the center as well. Turtles and rodent colonies developed of their own accord. Meanwhile, research on soil and vegetation in the center has shown that the ungulates assert a positive effect on their environment. Scrub and bushes, even endangered shrubs began to grow on what had once been barren plain. The presence and careful protection of the native animals brought the desert back to life.

All the while, scientific research has continued. The center's scientists can be found toting binoculars, strapped to the top of a jeep as they drive through the desert monitoring the condition of the herd under the cover of darkness. In addition to visual censes, each year the center's staff members capture about one-fourth of the herd to weigh and measure the animals, marking them with numbered eartags for later identification. This and other research has amounted in a great deal of scientific literature and increased interest in the center and its work. Students from across Uzbekistan and as far away as Moscow visit the center to study desert animals; scientists from around the globe have visited to research everything from groundwater and soil salinity to rodent acoustic life and gazelle hormones.



The staff of the Djeiran Ecocenter hoped to introduce cheetahs (*Acinonyx jubadus*), now extinct in the wild in Uzbekistan, into the center as a natural predator, but the process proved too complicated. Today the aged Nika is the only cheetah in the center. *Photo by L. Woodson.*

But, like nearly all nature protection and scientific institutions in the former Soviet Union, the Djeiran Ecocenter has experienced significant financial difficulties ever since perestroika in the late 1980s. Left with but a fraction of its earlier budget, the center's staff has searched for other means of financing their work, such as selling animals to zoos, charging rent for international scientists to conduct research in the center, and allowing trophy hunters to kill a few gazelles each year. But more than any other factor, it is the passion of the staff – the same passion which brought the center into being a quarter century ago and fuelled its development – that now continues to support the Ecocenter's existence.

Information provided by ***Natalia Soldatova****, head of the scientific research team of the Djeiran Ecocenter.*

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The Kulan in Central Asia

Map by M. Dubinin.

By ***Olga Pereladova, Valery Kuznetsov,*** *and* ***Ryspek Baidavletov***

The kulan (*Equus hemionus*) is the only odd-toed ungulate left in the wild in northern Eurasia, the sole remaining relative of the millions of tarpans, wild asses, and horses that once roamed the open expanses of the continent. Smaller and stouter than domesticated horses, the kulan is the swiftest of all equids, capable of reaching speeds of 70 kilometers per hour for brief periods and sustaining a pace of 50 kilometers per hour. Kulans feed on grasses and low succulent plants, thriving in flat desert plains of Central Asia. Nonetheless, kulans require favorable feeding grounds in winter and adequate water in the hot summer, needs which may lead entire herds to travel considerable distances every year. The animal's survival has presented a challenge to conservationists in Central Asia, who have actively worked to save the species since it neared the brink of extinction in the middle of the last century, and recently almost repeated that fate.

By 1941, no more than 200 kulans comprised the only population in Badkhyz Zapovednik, a reserve founded that year in the Turkmen Soviet Socialist Republic. Despite the protection of the zapovednik, this population continued to decrease until 1955, falling to 120-150 animals. At this time, scientists and Soviet officials made their first attempts at restoring the species to its historical range: they transferred 14 kulans from Badkhyz to Barsa-Kelmes Island in the Aral Sea, which spans the border between Uzbekistan and Kazakhstan. There a 30,000-hectare nature reserve – not to mention the waters of the sea – afforded a safe location for reintroduction. Between 1957 and the early 1980s the number of kulans grew to about 2,000 in Badkhyz and 200 on Barsa-Kelmes Island.

The relocation program expanded between 1979 and 1989, sending more than 100 kulans from Badkhyz to eight areas within the historical range of the species in Turkmenistan. Only one translocation was not successful: all the rest created a basis for free-ranging population development. In total, by 1996–1997 there were more than 500–700 kulans in Kazakhstan and about 6,000 kulans in Turkmenistan. Of the latter group about 5,000 lived in Badkhyz Zapovednik (data are approximate as the last full census in Badkhyz was conducted in 1992) and about 1,000 in artificially restored populations elsewhere in Turkmenistan.

Nevertheless, as the tragic desiccation of the Aral Sea continues, conservationists worry that the main population of kulans in Kazakhhstan has neither real protection, nor a good source of drinking water. Even so, the situation seems to be satisfactory and even good in some areas. Although the desiccation of the sea has turned Barsa-Kelmes Island into a peninsula and the effects of a nearby abandoned biological weapon test site remain unknown, about 100 kulans still live in the Barsa-Kelmes Nature Reserve. Another 35 were reintroduced to the Aktau-Buzachinsky

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Sanctuary in 1991, which have grown to a population of more than 100 on the Mangishlak Peninsula. Between 1986 and 1990, 105 kulans were reintroduced to the Andasai Sancturary, and have since spread all over the surrounding area to total around 200. In 1984, 32 kulans were reintroduced to the Kapchagai Game Area, which subsequently became the Altyn-Emel National Park (over 50,000,000 hectares in area). According to park staff, who conducted a census n 1999, more than 500 animals currently live there.

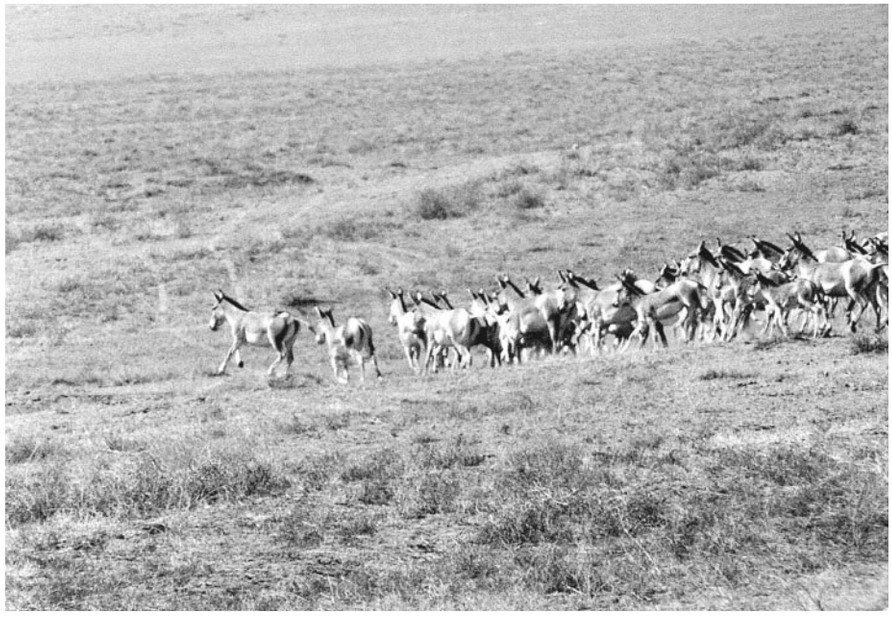
But even as the active reintroduction program stabilized the population in Kazakhstan and made important progress in saving the species, a new problem arose in Turkmenistan as kulans began to leave the borders of nature reserves. In the 1990s, kulans could often be found on agricultural fields, harming wheat crops in a time of local famine. One appraisal of the damage calculated losses at about $5,000 for one village in 1995, although the exact amount is probably lower. Nonetheless, at that time the yearly income of an average family was about $100–150, so the significance of the financial loss caused by the kulans' grazing should not be underestimated.

The problem in Badkhyz stems from the kulans' summer migrations for watering places. The River Kushka, the main summer watering place of Badkhys population, is situated away from the territory of zapovednik. Thus enormous herds of kulans are forced to migrate through agricultural lands and spend all of the hot, dry summer in a small area along the river. This makes the animals easy prey for poachers, the leading cause of the population's decline. A series of droughts in recent years has exacerbated the problem. Grass developed poorly and natural watering places dried up, while artificial watering sites barely operated owing to equipment that was 25-30 years old. As a result, by April 2000 all the kulans had already left the safety of Badkhyz Zapovednik to go to the Kushka River watering points instead of waiting until July or August, when they usually migrate. The carrying capacity of these pastures was sure to be unable to support the population, and the species seemed to be in even greater peril than before. From 5,000 animals in 1996, the population was halved by 1998, fell further to 1,500 in 1999, and dipped to just over 300 animals by the summer of 2000.

In summer of 2000, a special group of rangers conducted intense observations in Badkhyz Zapovednik, paying special attention to natural and artificial watering places, and determined that the total number of kulans in Badkhyz was just over 300 animals. Seventeen (out of 600) kulans remained in the Meana Chaacha Zakaznik, and 15 out of 150 in Annau (Kalininsky Sanctuary). No other data currently exist on the condition of the Turkmenistan populations, but hope remains that small groups of animals still reside in inaccessible areas around Badkhyz, and are thriving in the West Kopetdah (Sumbar-Chandyr Valley) and Ustyurt Plateau around Lake Sarakamish.

While hope remains that some isolated groups of kulans still reside in inaccessible areas around Badkhyz and are thriving in the West Kopetdagh (Sumbar-Chandyr Valley) and Ustyurt Plateau around Lake Sarakamish, there is no doubt that herds in Turkmenistan as a whole have followed a catastrophic downward spiral. This decline could have been largely prevented had international help arrived earlier. As far back as 1992 and 1993, Turkmen specialists, environmental government agencies, and international experts had sounded an alarm, calling for scientific management of kulan populations with the aim of further reintroduction in suitable areas. As a nation that gained independence in 1991, Turkmenistan had neither experience nor the necessary funds for developing and implementing such a plan, so the demand for international help and financial support was great. The World Conservation Union (IUCN) conducted many helpful surveys and analyses, but could not offer funding. Then in

A herd of kulans (*Equus hemionus*). *Photo by O. Pereladova.*



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1996, together with specialists from the World Wildlife Fund (WWF), regional and national experts compiled a project portfolio for conserving biodiversity in Central Asia, including in it a plan to save the kulan.

The first organization to react was Zoological Society for Conservation of Species and Populations in Munich, thanks to the personal efforts of Dr. Gertrud Neumann-Denzau. The Zoological Society donated some money for protecting the kulans in the critical period from May to October 2000 on their summer grounds, and continued similar help in 2001. Following a trip to Badkhyz in spring 2000, Dr. Hartmut Jungius, the WWF director for Eastern Europe and Central Asia, addressed different organizations searching for urgent help. Funds from the Thyll-Durr Foundation allowed new water pumps to restore artificial watering places for animals in Badkhyz. In 2001 WWF gained an important donation for its three-year project from the Wilsdorf Foundation, with additional help from Zoo Schonbrunn, Vienna; in autumn of that year Dr. Patricia D. Moehlman (Chair IUCN/SSC Equid Specialist Group) helped secure additional support from the Wildlife Trust. But the main positive role in the practical aspects of nature conservation belongs to the Ministry of Environment of Turkmenistan, as any measures were possible only with its permission and active participatory support.

This first year's work has already shown some positive results. Rangers in Badkhyz Zapovednik have stepped up their patrols, and volunteer ranger groups have begun working seriously in regions surrounding the zapovednik. The Ministry of Environment has helped create a mobile group of rangers comprised of experts who work throughout the entire region. Both these rangers and the staff of the zapovednik now have vehicles and horses, radio-communications systems, and field equipment. This equipment allows them to track the kulans more effectively when they migrate to their summer pastures and watering places. Even the military has become involved, working with officers to control the activities of local subdivisions. To provide direct aid to the kulans themselves, a water-tank and four water-pumps were purchased (two for Badkhyz, two for Meana-Chaacha Zakaznik), and four watering places for ungulates were repaired. These watering places attract animals to safer areas during the critical dry periods and allow scientists and rangers to observe the populations more thoroughly. Finally, work with the public has also begun, and is expected to become an important component of the project.

A special census was conducted in Badkhyz in July 2001 by Dr. Gorelov, a seasoned expert who had been working in Badkhyz regularly for at least the last 40 years. The result of his census show the population of kulans in Badkhyz is now around 585 animals. The number of newborns in the population is very low (3,9%), as the population lived under unfavorable conditions last year during the reproductive season. But in his report Dr. Gorelov specially pointed out that the main part of Badkhyz territory, as well as Kushka-Egrytek area, is being protected better than it has ever been since the creation of the zapovednik 60 years ago. One of the most encouraging signs was the visibility of large herds of kulan, where earlier only small groups had been sighted. Still, there are other areas that require additional attention. In parallel with the further development of the practical conservation measures, this year experts are beginning to monitor the kulan groups in West Kopetdagh and Sarakamish. All of the involved parties hope that together the progress made will ensure the future of this unique animal.

A grove of wild pistachios in Badkhyz Zapovednik, Turkmenistan. *Photo by O. Pereladova.*

Dr. Olga Pereladova *is the WWF Manager for Central Asia, RPO WWF.* ***Valery Kuznetsov*** *is an independent expert from Garrygala, Turkmenistan.* ***Ryspek Baidavletov*** *is head of the laboratory in the Institute of Zoology, Almaty, Kazakhstan.* *The authors would like to express their thanks to all their donors and to the Ministry of Environment of Turkmentistan.*

Supplementary information for this article comes from *Walker's Mammals of the World.* Ronald M. Nowak, ed. John Hopkins University Press, 1997.

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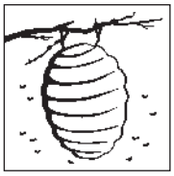

Conservation management

Saving the Central Asian Leopard in Turkmenistan

By ***Victor Lukarevsky***

Project location. *Map by M. Dubinin.*

I learned long ago of the conflict between people and big cats. When anthropogenic pressures such as herding drive down populations of wild ungulates, predators must prey on other animals, and domesticated animals become easy targets. Naturally, struggle arises between the interests of protecting the predators and preserving the local economy, especially in poverty-stricken rural regions where herding is the only means of sustenance. A successful conservation strategy must find a way to mitigate this conflict and interest the local population in conserving the predators.

As recently as the last century, one of such predators, the Central Asian leopard (*Panthera pardus ciscaucasica*), was found throughout all of the mountains of Turkmenistan, southern Uzbekistan, and southwestern Tajikistan, as well as parts of the Caucasus. The cat was equipped for many kinds of terrain and nimbly navigated the rocky canyons and ravines of these rugged mountains. Today such habitats are confined to less than 600,000–800,000 hectares. Almost all of the leopard's habitats degraded quickly when they were subjected to overgrazing of domestic herds, timbering, fires, hunting, the introduction of agriculture, and in some cases even tourism.

When two fundamental species in the leopard's diet –wild goats (*Capra aegagrus*) and urials (*Ovis vignei*) – began to decline, the leopard showed surprisingly flexible behavior, turning first to wild boars (*Sus scofa*), then to porcupines (*Hystrix sp.*) as new sources of food. Indeed, the cat's ability to survive as a population in less than optimal conditions is one of its defining traits. Even so, the population is presently declining, following a precarious path toward population fragmentation and ultimately extinction.

The problem is not just diminishing habitat and food sources, but poaching, especially in retribution for killing livestock. Planning a strategy for protecting animals like the leopard must therefore take into account the lives of people whom the animals encounter. The law on endangered species of Turkmenistan clearly states that prescribing punishment for killing protected species must be accompanied by creating an incentive to protect them. Simply declaring the animal a protected species can actually have an opposite and undesired effect, making the cats a target for poaching and a prize on the black market. Moreover, in densely populated regions where leopards regularly attack the very livestock people depend on for their livelihood, legal restrictions are ineffective due to the stronger influence of economic factors. Local communities often try to hide incidents of people killing leopards, and the agencies responsible for punishing such acts do not take serious initiative to investigate the incidents.

Taking these factors into account, an experiment organized with funding from the World Wide Fund for Nature (WWF) has developed a new approach to coexistence between the leopard and local populations. In 1999, I became the leader of a team intended to create a financial compensation plan for people who had lost livestock to leopards. Part of the reason I agreed to take on the project

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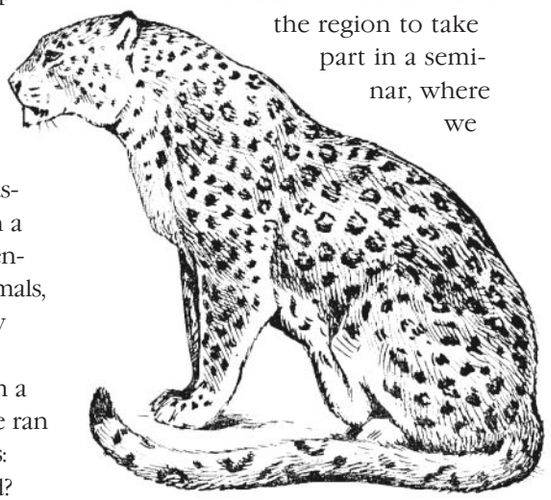
was because I was so impressed by the team WWF had composed, especially the fact that it included members of the local community. For me, the most unexpected aspect of our work was the attitude of local residents, who actively participated in planning a strategy for leopard conservation. Convinced of the importance of changing the status quo, they showed great energy and effectiveness in uniting the team.

We set out to do our work in a rural region of the Sumbar River Basin. It was a challenging location, a place where people truly live side by side with leopards. On the other hand, it was my home, where I felt the support of every mountain, a place where I knew many people, and could recognize every leopard by sight.

After a series of impassioned discussions and debates we agreed upon a strategy. Our plan involved compensating local ranchers with live animals, in essence materially replacing any animal killed by a leopard. As we moved forward with plans to form a flock of sheep for this purpose, we ran into a number of crucial questions: how would the flock be organized? Who would manage it? How would cases of leopard attacks be analyzed? Who would determine the amount of compensation necessary?

Using the money WWF provided, we bought 196 sheep, which subsequently became the property of the Catena Ecoclub. The wisdom of this strategy lay not only in involving local people directly in its planning and realization, but also in the far-sighted use of financial resources. Regardless of the initial generosity of a donor, sooner or later the money will dry up. Ideally a change in the local economy and in people's attitudes would make the need for continued funding unnecessary. But such sea changes could not be relied on in the brief two to three years our grant was to last. Thus we needed to find a sustainable way to manage the funding. Under proper management, a flock of sheep is capable of reproducing and growing in size virtually on its own. A flock of 650-700 sheep would grow on its own and cover the cost of paying shepherds and veterinarians. Expanding the flock also provides the opportunity to offer the same service to neighboring regions that have similar conflicts between people and nature.

Our next step was to involve the local community in a broader sense. We invited 40 of the most respected and influential ranchers in the region to take part in a seminar, where we explained our idea and asked for help in implementing it. In response, several ranchers voiced their desire to insure their herds against leopard attacks, and a council was elected to manage the newly formed flock for one year. We also decided that eventually the flock – and the responsibilities that accompanied it – would become the property of a soon-to-be-formed Kara-Kala Ranchers' Society.



The Central Asian leopard (*Panthera pardus ciscaucasia*). *Reprinted from the* Red Data Book of the Soviet Union, *Moscow, 1978.*

The council chose two experts to investigate cases of supposed leopard attacks. Ranchers who lost livestock were given a set period of time to register the attack with one of the experts, who would determine not only whether or not it was indeed a leopard who had killed the animal, but also whether the rancher's herd was being properly managed at the time. For example, if the herd had been left unattended for a long period of time, or if it was grazing in a zapovednik, the rancher might not receive compensation. On the basis of the expert's recommendations, the council would decide how many, if any, sheep would be given to the rancher.

Within the first four months of the experiment the experts reviewed nine cases of suspected leopard attack; the council subsequently handed over 27 sheep as compensation in six of these cases.

Naturally, this project can have significantly broader success if aimed at a wider audience, involving schoolchildren, border guards, and ultimately all levels of the population. Informational poster displays stand in all of the local councils to educate the community about the progress of the project. Future plans include creating computer classes for schoolchildren to learn to use computers at the same time that they receive instruction in sustainable land use and the importance of preserving the natural heritage of their region. It is our hope that with time, a two-pronged strategy that incorporates both education and economic incentives for leopard protection will support the long-term survival of the species.

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For Discussion

Russia and Climate Change

By ***Elizabeth Zelljadt***

The United Nations Convention on Climate Change (UNCCC), an outgrowth of the 1992 Rio "Earth" Summit, has received much attention primarily because the process of climate change and its effects are becoming better documented all over the world. The severity of the problem and the search for solutions has spurred both negotiation and research into climate trends, especially possible effects on ecosystems. How exactly the Russian environment is affected has thus far been relatively unknown. A recent compilation of scientific research, however, completed under the auspices of World Wildlife Fund for Nature (WWF), has documented the trend in climate change and predicted some future patterns for Russia. This information is essential to predicting how natural ecosystems will change and how flora and fauna populations will have to adapt.

In compiling its analysis, WWF tapped a source of some of the most comprehensive climate information in the world: Russia's zapovednik system, known for its meticulous environmental monitoring, has been taking meteorological measurements and keeping detailed records for many decades, especially in the European part of Russia, where the oldest research stations are located. The detailed monitoring of temperature, precipitation, humidity, tree foliation, and animal migration patterns over the last decades was originally conducted as a matter of course under the Soviet system of zapovednik management. Today this information offers some of the most accurate examples of climate change and its effects over the long term.

Most Russians, even city-dwelling Muscovites, will note how much the weather has changed over the past decades, reminiscing how the winters used to be colder and summers have gotten rainier. Ironically, many of these amateur observations are supported by the evidence of long-term weather patterns. Monitoring stations in the zapovedniks that contributed to the WWF study provided evidence for long-term trends in global warming, such as higher temperatures in the cold seasons and statistically valid warming and increased precipitation, a shorter period with stable snow cover, and a longer frost-free period.

Interpreting such long-term changes in climate can be very complex, however. Weather patterns naturally vary, and it is impossible to determine clearly whether the observed changes are the result of human activity, i.e., of increased amounts of carbon dioxide in the atmosphere, or simply natural fluctuations. Results of the greenhouse effect are often not uniform, and vary in severity according to location or season. In some places they may show themselves in the form of higher precipitation, for instance, while other areas experience the spring thaw sooner, or have a generally milder winter. Studies in Russia are a perfect example of why scientists prefer to use the term "climate change" rather than the more threatening sounding "global warming" often used by media and special interest groups. Though overall, long-term compilations of measurements in Russia do show a warming trend, the various factors from which the trend is drawn are not uniform "warming" per se.

In the region covered by the latest research, for instance, the variation appears to be seasonal. One of the most interesting and most prevalent trends for European Russia showed that warming indicators depend significantly on the time of year: over the last half century, increased warming occurred mainly during the cold half of the year (winter months) whereas the warm half of the year shows little change in average temperature or even a slight cooling.

What does all this mean for Russia's wilderness and biodiversity? It is clear that the changes observed throughout the last few decades will alter (and are already altering) Russia's ecosys-

Willow ptarmigan (*Lagopus lagopus rossicus*). *Reprinted from the* Red Data Book of the Russian Federation, *Astrel, 2001.*

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tems and thus the habitats of rare species. But since habitats are always in flux to some degree, species often have the ability to adapt to changes in ecosystems or migrate to find new ones. Indeed, the assessment result of the WWF study even generalizes that "the current climate warming has not yet become a factor bringing about cardinal changes in the structure or function of ecosystems." Nonetheless, for Russian ecosystems the largest threat is the rate of climate change.

Although species are able to adapt to new conditions, they cannot do so in a matter of years: such adaptation requires multiple generations. Meanwhile, the impact of climate change is expected to be exponential: species will have to adjust increasingly quickly, which they may not be able to do. Thus, if climate change impacts ecosystems too quickly, the flora and fauna—especially rare and endangered species, usually the most sensitive—cannot adapt and may be lost forever.

The willow ptarmigan (Lagopus lagopus rossicus), for example, is a threatened species extremely vulnerable to climate change. Its habitat, open watershed marsh areas across the middle of European Russia, is especially sensitive to changes in temperature, precipitation, and frost period. With a rapid change in these factors, such open and relatively dry marsh can become young deciduous forest in a matter of seasons. If the process were to happen slowly, ecosystems

The Politics of Climate Change

In Marrakesh, Morocco, November of 2001, the United Nations held the most recent session of the Framework Convention on Climate Change, an agreement and according series of meetings that originated at the famous "Rio Summit" for the environment in 1992. United Nations countries are parties to this convention, which in 1997 developed the "Kyoto Protocol," an accord attempting to set binding limits on the amounts of carbon dioxide countries may emit. An unprecedented international effort to reduce global warming, the Protocol met with much controversy from governments and industry. However, at this November's summit, 170 countries (including Russia) finally came to agreement on the long-disputed Protocol, now set to go into effect in 2002.

Russia was dealt a good hand (some would say given a lucky break) in the most recent Conference of the Parties to the Kyoto Protocol, held in November. This international agreement attempts to combat climate change by reducing the buildup of greenhouse gases in the atmosphere through a trade-based, economic incentive similar to "pollution permits" bought and sold by factories in the United States. Participating countries received a quota or percentage by which they must cut their levels of emissions in the coming years, and are penalized if they fail to meet the reduction requirement or else to buy extra points from countries that managed to reduce emissions more than they were required. Russia's unique position in the deal is the date of the base year from which all quotas in the treaty are measured: the amount each country emitted in 1990 is the measuring stick for quotas, and all countries must reduce emissions by certain percentages below 1990 levels. Coincidentally for Russia, the year after this base, 1991, brought the collapse of the Soviet Union, and with it drastic decline of industrial output. With this decline, Russian emissions of greenhouse gases have dramatically decreased, and accordingly Russia is left with an emission-point surplus, having by default achieved more than its required percentage drop below 1990 levels. Thus placed in an advantageous position, Russia is able to reap the benefits of the trade-based protocol: it can sell its extra points to countries unable to accomplish their quota and thus make money on the "market" of greenhouse gases.

Though this advantage for Russia appears to be a positive windfall politically and economically, environmentalists point out that in the long run the outcome is not beneficial to Russia's environment. Strict quotas and emissions reduction goals force other countries to make real changes in their industry and public environmental awareness. Leading industrial countries party to the protocol, urged on by the mandatory reductions, are taking significant steps toward clean power: Germany, for instance, recently embarked on an enormous wind power program to decrease dependence on fossil fuels. With most of its neighbors and trading partners shifting to "green power," Russia could be left behind in the long run. Without stringent emission reduction requirements like other European countries, Russia has no incentive to make this power production shift. There is also no incentive to encourage public awareness about fossil fuel burning and climate change. Thus, many hope that in the second "commitment period" of the Protocol (when reductions are evaluated and new targets are assigned) Russia will have to take some responsibility for emissions reductions and make real changes, hopefully resulting in greater public environmental consciousness.

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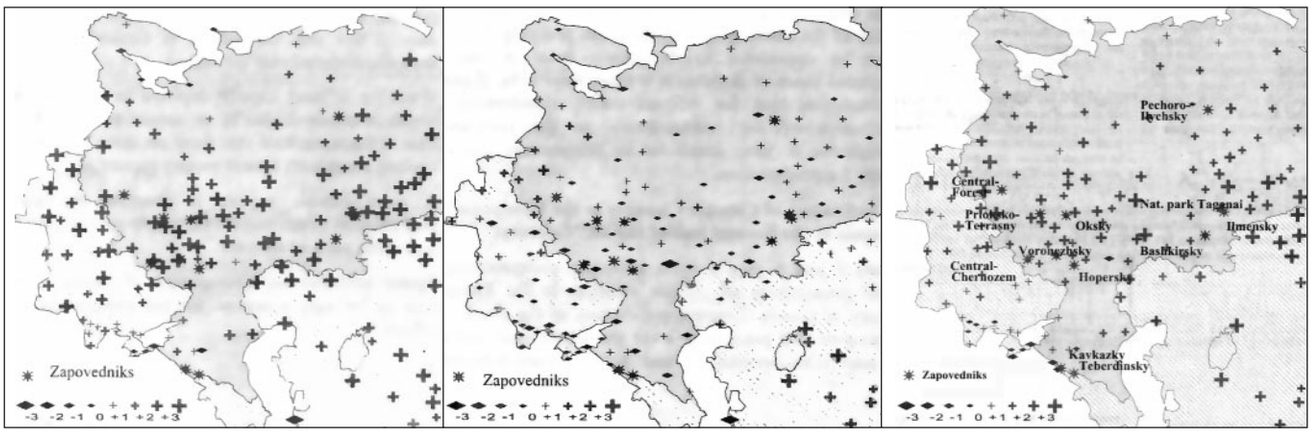
The data show that most summer temperatures have not risen, in fact some have fallen slightly. Winter temperatures, however, have risen severely, and thus the yearly averages reflect a warming overall. Russia's case goes to show that while most people picture "global warming" as a steady rise in temperature, the process of climate change is really more complicated and therefore in many ways more threatening: it is not just the temperature that is changing, but the entire weather system and patterns to which ecosystems have adapted over centuries.



Averages for cold months (October-March). Averages for warm months (April-September). Annual average.

Changes in temperature marked with plus and minus signs, 1951–1998. Maps courtesy of WWF.

might simply "migrate": another area would become marshland, and the bird would be able to find new similar breeding grounds. Rapid climate change, however, means certain habitats might completely disappear. Adapted only to such a specific ecosystem for its breeding grounds, the species may not be able to change its migration patterns so quickly, or even worse, may simply have nowhere to go.

Conservationists use the results of climate change research to determine how to help such species. For many of Russia's most precious protected areas, efforts such as building corridors to new habitats, or adaptation plans for ecosystems at risk, are in the works. WWF itself has a project underway entitled "climate passports," which is aimed at bringing public awareness to some of the areas rated most at risk for climate change. WWF will develop "passports" for certain "Global 200" ecoregions (the 200 key ecoregions, together comprising about 90% of the earth's biodiversity) and will propose adaptation plans for certain areas that are highly vulnerable to climate change. Some of these high-risk areas are in Russia, and "climate passports" provide information about the appearance and consequences of climate change for that ecoregion. The Altai-Sayan Ecoregion, for instance, is the subject of the first such "passport," as it contains some of the most fragile and rare ecosystems in Russia.

While the WWF report on climate change in Russia is a valuable study, it is really only the beginning of much needed research in the labyrinth-like field. Research in North America has suggested that tundra and permafrost forests are particularly critical elements in global warming, as the melting of permafrost releases methane, a greenhouse gas stored in the frozen earth with a warming effect 10 to 20 percent stronger than carbon dioxide. To date, however, the data that exist on climate change in permafrost regions of Russia have not been duly analyzed; moreover, although some zapovedniks are located in these regions, they are generally younger and have smaller compilations of data than the oldest of their counterparts in European Russia. Continued research in these and other areas of Russia will provide scientists with a clearer picture of climate change; impeding climate change, however, will require both global and local action.

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Elizabeth Zelljadt *worked as an intern with RCN during the fall of 2001 and has served as an NGO delegate at UNCCC meetings. She is currently a student at Northwestern University.*

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Conserving Forests

Russia's Changing Forest World

Aleksandr Isaev. *Photo courtesy of A. Isaev.*

Note from the editors: *Russia's forests and forestry industry stand on a threshold as the nation continues to take steps away from its socialist past toward a full market economy. Current reforms in natural resource management and the privatization of state-owned lands are just beginning to reach the forest sector, and they may dictate the future of Russia's forests. In the following article, one insider offers his view on the key problems in the forest sector today and the necessary measures to make forestry a more profitable resource for Russia without sacrificing environmental health.*

By ***Aleksandr Isaev***

Recent years have brought to light a number of negative trends in forestry in Russia. While the occasional environmentalist has welcomed the dramatic fall in Russia's timber production over the past decade, it is painfully clear that this decline has not promoted the nation's sustainable development. Moreover, the current disorder of the forestry industry has loosened controls over cutting old-growth forests and propagated illegal cutting and export. Russia's forests contain vast resources in both timber and non-timber forest products (mushrooms, berries, recreation, etc.), and their value for opposing climate change as has been appreciated on the global carbon credit market. If properly managed, Russia's forests could become a crucial factor in Russia's economic development, but at the current time this resource is being used ineffectively. Though possessing nearly a quarter of the planet's forests, Russia contributes only three percent of the world's timber production, as determined by the Forest Productivity and Ecology Center of the Russian Academy of Sciences. Indeed, Russia itself uses less than 25 percent of its allowed annual cut. The volume of processed timber products Russia produces has fallen to one-third its levels a decade ago. Raw timber comprises more than 50 percent of forest product exports, meaning that other nations reap the largest profits from Russia's forests. And these trends will not change on their own: the forest sector cannot have a successful future without reconstructing its management to comport with the political and economic realities of contemporary Russia and the global forestry industry. Three problems – taxation of forest use, organizing the structures of forest management, and controlling the privatization of forested lands – stand in the foreground of this issue.

The first of these issues is based in the fact that the federal government does not effectively make use of one of its most important rights as the proprietor of its forests: receiving full value for use of the forests. Considering the size of Russia's forest resources, the collection of taxes on forest use ought to play an important role in increasing the nation's wealth (that is, the wealth of all its citizens) and improving socio-economic conditions in forested areas. In other words, if wisely managed, such funds would be reinvested to raise the standard of living in the impoverished logging villages that dot the Russian countryside. They would also be put to use developing a more orderly forestry industry in Russia. At the present day, however, payments to the federal government for leasing forests are so low that they cover less than 50 percent of its expenditures on forestry. Taxes for using natural resources and fines for polluting the environment bring in only four percent of the monies of the consolidated budget of the Russian Federation, and payments for forest use a mere 0.14 percent. Taxes on the use of processed wood products together with trade and export duties account for 1.8 percent of collections for the federal budget. In other words, it is not the use of the forest (or even of raw timber) that is taxed, but the value added to wood products through processing or trade; and even this added value is comparatively low, owing to the low output of processed wood products in the country. Meanwhile, logging companies and criminal businesses skim away the

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majority of the industry's profits.

The government's inability to appropriate and reinvest money from forestry is holding back the forestry industry, both in economic and environmental terms. This kind of poor economic management will not support sustainable development. For this reason, a new financial system based in taxing forest use should be brought into law. But even now, payment for the use of natural resources is not a central focus of tax reforms. These issues should be resolved together with other environmental tax reforms that will improve the economic and environmental condition of the country by shifting the nation's tax burden from labor and capital to include natural resource use. Such a shift cannot happen without the support of the federal government.

The second major issue in Russian forestry today involves improving forest management structures. Three tasks are involved in forest management: timbering, caring for the trees (replanting, controlling pest outbreaks, etc.), and deciding by whom, where, and in what way these two tasks will be fulfilled. These tasks must be kept in proper balance to maximize both economic benefit and ecological health. A conflict of interest may arise, however, when one agency or organization is responsible for carrying out all three tasks. The Federal Forest Service became entangled in this conflict, which was particularly visible in the Service's lower branches, state-operated forestry enterprises called *leskhozy*. Given pitifully little money from the federal budget with which to protect and manage tracts of forest, individual *leskhozy* were forced to find alternative sources of funding, which inevitably meant cutting their own trees themselves and selling the timber. Indeed, in 2000, *leskhozy* "earned" 70 percent of their budget in this way, and even so this income was barely enough for survival. At the same time, these cuttings constituted more than 20 percent of the nation's entire timber harvest, and thereby brought the *leskhozy* into the ranks of the monopolistic logging companies in Russia. By the late 1990s the Federal Forest Service had become obsolete, unable address new issues presented by the appearance of logging companies springing up across Russia, not capable of making forestry a profitable enterprise for Russia. Ultimately it was these deficiencies that in part led to its dissolution.

Although President Putin's transfer of the FFS's responsibilities to the Ministry of Natural Resources aimed to eliminate the contradictions and deficiencies of federal forest management, so far these results have yet to be seen. If anything, the situation has actually worsened, as the *leskhozy*, which still operate as before the dissolution of the FFS, now exist without the judicial and economic independence they used to enjoy. Instead of being governed by a large and powerful institution focused solely on forests, the *leskhozy* now answer to small committees within the Ministry of Natural Resources. Moreover, these committees lack the trained specialists that used to work in the FFS. This move has weakened state forest management or forestry production, and done little to balance the interests of the varied parties in the forest sector: the nation as a whole, the forest users, and the federal structures that currently manage the forests and *leskhozy*.

To improve the management of forestry in Russia and do away with conflict of interests still present in forestry management, administrative management of forests should be the responsibility of a centralized governmental forest service, while the conducting actual physical forestry activity (logging and replanting, etc.) the responsibility of the *leskhozy*. Analogous responsibilities should be given to logging companies for the

Russia's forests are a rich natural resource. *Photo by I. Shpilenok.*

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territories they have leased. In essence, this reform will set *leskhozy* on the path to becoming government-owned logging companies that can compete with private logging companies. This kind of reorganization should be a constant process, taking into account particulars of the region and local economic conditions. Eventually, as this reform process develops and receives increasing legislative support, *leskhozy* will have the opportunity to create stocks and become multifunctional. At the same time, administrative management of forests and forestry can be improved by creating a new branch in the government forest service on the local level.

The third major issue facing the forest sector is the privatization of forests, and the legal jungles assumed therein. According to the Forest Law Code of the Russian Federation, forests are still federal property. Questions of ownership, use, and governing of forests lie within the joint authority of the Russian Federation as a whole and its individual republics and provinces. At the same time, the constitution of the Russian Federation recognizes many forms of property and allows the division of forests and forested lands into federal, regional, and municipal (including privately owned) forest tracts. In recent months this idea has been further developed and has been included in the Civil Law Code of the Russian Federation, where forests are listed as real estate property that may therefore be bought and sold. The new Land Law Code of the Russian Federation (ratified in October 2001) allows for "limited" transfer and use of forested lands, but the limits themselves are not specified. This vagueness could be potentially dangerous, allowing uncontrolled buying and selling of forested lands. In short, the path of land privatization in Russia is fraught with dangers for the future of the forests that cover two-thirds of Russia's soil.

For this very reason, one of the most important challenges in the near future is developing legal regulations regarding the sale of forested lands. The authors of the current reform plan (*Action Plan of the Government of the Russian Federation in the Field of Social Politics and Modernization of the Economy in 2000–2001*) have recommended instead of a department responsible for managing natural resources (in the given case, a governmental forest service), a special agency for property management (for example, a Ministry of State Property of the Russian Federation) be responsible for these sales. If left to chance, then, as written in the reform plan, the Russian government will be left with the responsibility to care for "lands that present no interest to the private sector and municipal communities," while all the rest will be put to economic use. If Russia nonetheless chooses this path, the time is not far when new forest barons will rule hundreds and thousands of hectares of forests, having gained them as private property on the basis of new land and forest laws that contradict each other.

A young moose.
Photo by I. Shpilenok.

Russia has already had a bitter experience with the privatization of its forests in the pre-revolutionary period, when widespread clear-cutting led to the loss of 30 percent of the forest cover in European Russia. It is also perilous not to consider the current legislative trends in developed countries with market economies, which increase the share of public forests by buying them from the private sector. The ever-increasing role of forests as a crucial component of the biosphere testifies to the need for the government to retain its property rights on forests in Russia.

The scale and varied components of proper forestry management require an institution as large and multifaceted as the government. The proprietor of Russia's forests must exercise its right to earn money off of those forests and reinvest a part of that money to protect the forests and care for the trees. It must adequately consider and fulfill international requirements for conserving biodiversity and forestalling global climate change. It must preserve existing scientific institutions and support the use of science to resolve management problems in the forest sector. And it must make full use of good legislation to ensure control over forest use and forest conservation. If the government remains the proprietor of Russia's forests, it will of course still face a conflict of interests in both susing and conserving the forests. But it has the breadth of resources at its disposal to overcome this conflict better than any other potential forest owner.

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NGOS

Reflecting on Russia's Environmental NGOs

Note from the editors: *RCN intern Evgenia Burovtseva interviewed the leaders of several Moscow-based environmental NGOs about the recent history of the public environmental movement. Below is her analysis of interviews with* ***Askhat Kayumov****, Director of the Dront Ecological Center;* ***Vladimir Moshkalo****, Head of the International Union for Conservation of Nature (IUCN) office in Russia;* ***Evgeny Shvarts****, Director of Nature Conservation of the World Wildlife Fund (WWF) office in Russia, and* ***Aleksey Zimenko****, General Director of the Biodiversity Conservation Center (BCC).*

The life of the Russian environmental non-governmental organization (NGO) family dates back to the early 1960s, a time when registered NGOs in the USSR were under strict government control. Most of the information on environment degradation and catastrophes was classified and was available to only a small group of government *apparatchiki*. "Bad" news on the environment published in underground newspapers was considered anti-Soviet propaganda. Only after the Chernobyl accident on April 26-th, 1986, and other large-scale ecological catastrophes did it become impossible to keep these stories secret. The public environmental movement became a science that exposed the forbidden truth about ecology in the USSR.

As international borders opened and productive partnerships formed between domestic and international organizations in the early 1990s, many new NGOs formed in Russia. By 1996 there were already about a thousand Russian ecological NGOs, nearly a dozen regional branches of international NGOs, and above two hundred independent eco-periodicals. The problem was that while many "green" organizations and parties were developing and were deeply involved in their work with each other, they did not involve the broader public. As a result, Russians who did not work in nature conservation – especially those far from major cities – knew almost nothing about the projects and achievements of environmental NGOs.

Hopes built in Russia's "Green Referendum" have fallen. *Photo by I. Shpilenok.*

Between 1996 and 2001 the conservation movement in Russia experienced a new transformation as both public awareness of environmental NGOs as well as the number of volunteers working in environmental initiatives increased significantly. This change came during a severe economic recession, particularly after the devaluation of the ruble in August 1998. Those NGOs and projects that were successful managed to conduct their work in a time when economic woes caused environmental problems to become an even lower priority than they had been in the past. What made them successful? An examination of two major initiatives – the All-Russian Nature Conservation Referendum (2000) and the Ecological Doctrine (2001) – offers insight into this transformation.

According to Askhat Kayumov, Director of the Dront Ecological Center (*Dront* is the Russian word for the now-extinct Dodo bird), the economic depression caused public support of environmental movements to drop significantly as thousands of people involved in nature conservation became preoccupied with their own survival, literally with keeping food on the table. At the same time state authorities on all levels began paying increasingly less attention to public opinion. Traditional forms of protest (meetings, petitions, and appeals) were met calmly and almost ignored.

In short, massive political, economic, and cultural reforms changed many things in Russia, and environmental NGOs had to change accordingly in order to work effectively. The first step they took was simply spending time interpreting and reanalyzing their work from the early 1990s. The second was to find ways to begin significant and constructive cooperation with government agencies. The government was not always willing to cooperate with environmental NGOs, but the

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The Eight Guiding Principles of the Ecological Doctrine

- Setting long term priorities for planning economic and social development
- Ensuring state regulation of the environment protection and the use of natural resources
- Protecting the health of present and future generations from a harmful environment
- Keeping the environment a priority while making all political and economical decisions
- Restoring the ecological functions of areas disturbed by human activities
- Ensuring state environmental controls and monitoring, environmental assessments and licensing, which are needed for timely and reasonable decision making
- Participating in the international negotiation processes to protect Russia's people from harmful environmental influences from other countries
- Including the public in the development and enforcement of state ecological policy, including public environmental assessment

From the SEU Website,
http://www.seu.ru/documents/eng/doctrine/index.htm

NGOs tried to support each other. Gradually they formed an unofficial coalition and learned not to depend on government help, but to find solutions to problems themselves. Together environmental NGOs wielded more significant power and had the ability to influence state policy and to form an ecological agenda for the country.

On the 17-th of May 2000 President Vladimir Putin signed a decree abolishing the State Committee on Environmental Protection (*Goskomekologia*) and the Federal Forest Service (FFS). "This decree," explains Askhat Kayumov, "Became the event that revealed the central powers' negative attitude toward nature protection in Russia. It was very unexpected to see the president leading his anti-ecological policy so openly."

In response, many NGOs declared their disagreement with the President's decree. After some unsuccessful attempts at a constructive dialogue with the federal government, Russian environmental NGOs began the groundwork for an All-Russia Nature Conservation Referendum. Many NGO staff members took leaves of absence from their regular jobs to work for the Referendum. It was a colossal project, which required the gathering of two million signatures.

Aleksey Zimenko, General Director of the Biodiversity Conservation Center, pays special attention to the support of the Russian public. In a period of less than 4 months people collected more than 2.3 million signatures and showed unbelievable interest in the referendum's development. The All-Russian Nature Conservation Referendum gave both environmental NGOs and the ordinary population a cause under which to unite, though they were almost sure the Referendum would fail, as indeed happened. In November 2000 the State Electoral Committee declared over 600,000 signatures invalid on contestable, even spurious grounds. NGO leaders, however, may still rightly assert that the Referendum has not been forgotten. It remains in the consciousness of government officials and millions of ordinary citizens, some of whom in 2000 learned for the first time that a Federal Forest Service and State Committee for Environmental Protection had even existed.

The Russian Ecological Doctrine became the next examination for the NGOs. The need for a program on nature conservation was evident long ago, but officially the government announced it only on January 30-th, 2001, just a year before the "Rio+10" meeting, a follow-up of the 1992 United Nations Conference on Environment and Development. Some surmise that the Russian government feared national and international condemnation of their environmental policies, and the creation of an Ecological Doctrine was a good way to prevent it.

President Putin has made several attempts to create a governmentally expedient union on nature conservation. First he initiated the first national forum on nature conservation, a conference that conservationists saw as a token recognition of their growing concerns. The majority of the forum members were representatives of the nuclear power industry; the others were academic scientists. But the proponents of

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nuclear energy overwhelmed nature protection concerns, rendering this environmental forum ineffective. In spring of 2001 the second Russian environmental forum was held, which included many academic scientists as well as several NGOs leaders. The President offered them the opportunity to create an ecological doctrine for Russia. The doctrine was to be a set of principles guiding the development of Russia's environmental policy. As soon as other NGOs heard about it, they decided not to stand on the side and watch. The World Wide Fund for Nature (WWF), the Socio-Ecological Union (SEU), the Center for Russian Environmental Policy, Greenpeace of Russia, the Union "For Chemical Independence," the Biodiversity Conservation Center, and the Dront Ecological Center met together to make the Doctrine as sound, appropriate, and helpful as possible.

These seven environmental NGOs created and presented the doctrine to various governmental and non-governmental organizations. On April 20-th the environmental NGOs introduced the Russian Ecological Doctrine project in Moscow and on July 9-th a special government committee accepted it for detailed analysis. In its essence, the doctrine is a list of checks intended to ensure environmentally sound development of industry, sustainable use of natural resources, safeguards for human health, and protection of natural and cultural heritage. Thus the doctrine includes hundreds of practical measures, such as offering state subsidies for energy production using renewable resources, setting higher industry standards to cut pollution, phasing out water-borne nuclear reactors (primarily ship and submarine engines), and ensuring independent assessment of environmental threats.

The SEU and WWF have already collected hundreds of replies from all kinds of individuals and organizations who have offered their help in improving and implementing the proposed Ecological Doctrine. Evgeny Shvarts joked that even the Russian Constitution of 1997 was not discussed as much as the Ecological Doctrine offered by the NGOs. Among the hundreds of replies only two showed disapproval for the Doctrine.

As often happens in Russia, however, environmental policy changes are paid lip service but never fully realized. Although most conservationists support the ecological doctrine as a valiant attempt to lobby and work with the government, little has actually come of the much-hailed ecological doctrine. Indeed, many would argue that the most recent changes to environmental legislation will actually hinder rather than help conservation efforts.

Nonetheless, sometimes roadblocks seem to spur on Russia's conservation community, and most of the NGOs are optimistic about the opportunities for improving the condition of the environment in Russia. Vladimir Moshkalo, of the Russian office of the World Conservation Union (IUCN) noted that environmental policy has remained stagnant for a long time, waiting for support and understanding from the government, and therefore often seems circular. Nevertheless the IUCN leader imagines the future as a chambered nautilus, where the every next step is based on the past experience but also brings something new. Evgeny Shvarts hopes that environmental NGOs will not turn into governmental or purely scientific organizations, but grow and become wiser, refusing foreign sponsorship and enlarging their membership. Askhat Kayumov summed up some of the NGOs' hopes for the future saying, "I see the future of the union of environmental NGOs as regional and local powers standing against the anti-environmental expansion of the center. The closer the power is to people the better they understand each other. And also it is very important to enlarge and support the public's activity." In the present climate, in which the Russian government shows only meager interest in environmental concerns, this last aspect of the NGOs work may prove the most valuable. Indeed, most Russians are affirming of the environmental NGOs work, considering it necessary and hopeful part of Russia's future.

Evgenia Burovsteva *worked as an intern for RCN during summer 2001. She is currently a university student in Cherepovets, Russia.*

NGO and government representatives working together in the Smolenskaya Region. *Photo courtesy of the Biodiversity Conservation Center.*

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BULLETIN BOARD

Correction

In RCN #26 (Summer 2001), RCN erred in omitting the name of artist V. Gorbatov, who drew the pictures of the snow leopards and of the Altai argali mountain sheep on page 12.

Letter to the editor

Dear editor, RCN

I greatly enjoyed the articles in Issue No. 26 on the remarkable operations at Muraviovka Park in the Russian Far East. I had the opportunity to visit the project in 1998, and like everyone else who has been there was greatly impressed with the vision, dedication, and hard work of the two Sergeis and all the other personnel there.

The articles, however, neglected to mention the existence of the support NGO organization, "Friends of Muraviovka Park," which has been in existence for the past few years. Anyone who wishes to help support the activities at Muraviovka can for as little as $15 join the Friends and receive their newsletter and help support their efforts. The "friends" can be reached at the same address in Baraboo, WI, 53913-0447, as the International Crane Foundation, the full address and phone number of which was given on the back page of Issue No. 26.

Philip R. Pryde, San Diego, CA

Maps of Intact Forests in Russia

The Russian Forest Watch, a branch of the Global Forest Watch, has completed the mapping of the remaining intact, undisturbed forests of Russia. Similar mapping is currently being conducted in other countries as part of a global project to map the ecological condition of the world's forests. The map is intended to show the level of land transformation in the forest belt, as well as to indicate the regions least affected by human influences.

The maps may be viewed on the Forest Club's website at the following address: http://www.forest.ru/eng/publications/intact. Send comments to Dmitri Aksenov or Mikhail Karpachevsky at forest@ecoline.ru, or fax to +7 (095) 124-71-78. Postal mail may be sent to the Biodiversity Conservation Center, ul. Vavilova 41, office 1, Moscow, Russia, 117312.

International Conference on Ecological Botany

"Ecological Botany: Science, Education, and Application"

17–21 September 2002, Syktyvkar, Komi, Russia

The aim of this conference, organized by Syktyvkar State University, the Institute of Biology of the Komi Science Center (Ural Division), Russian Academy of Sciences, and the Ministry of Natural Resources of the Komi Republic, is to discuss scientific, educational, and practical achievements in ecological botany over the past ten years. Official languages of the conference are English and Russian.

Preliminary registration must be sent by May 15-th, 2002; the deadline for submitting abstracts is June 1-st, 2002. For more information or to receive an registration form, please contact the local secretariat:

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International Conference on Protected Areas

"The Role of Protected Areas in Conserving Eurasia's Steppes"

Republic of Chuvashia, May 2002

In conjunction with the Russian Academy of Sciences, Chuvashsky State University, the Ecocenter "Zapovedniks," and the Ministry of Nature Use and Land Resources of the Republic of Chuvashia, Prisursky Zapovednik is organizing an international conference on steppe ecosystems as well as the 7-th annual congress on marmots in steppe regions of Eurasia.

Articles and papers to be presented at the conference will be accepted until April 15-th, 2002.

All inquiries and registration materials should be addressed to Prisursky Zapovednik.
428003, Cheboksary, pos. Lesnoi, 9.
E-mail: prisur@chtts.ru

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Аннотации статей, представленных в номере

Раздел I.

Особо охраняемые природные территории.

«Министерство природных ресурсов РФ «хорошей погоды» не обещает». Николай Малешин.
После назначения Виталия Артюхова на должность Министра природных ресурсов РФ в управлении системой особо охраняемых природных территорий появился ряд негативных тенденций, которые нарастают как снежный ком. Финансовые и организационные проблемы ООПТ не решаются. Специалисты из министерства ушли.

«Почему я ушел из Министерства природных ресурсов РФ». Отрывки из интервью с Всеволодом Степаницким.
Негативное отношение руководства МПР к отделу ООПТ, нежелание понять и поддержать его многолетние инициативы в развитии системы охраняемых природных территорий, вызвали настоящий протест и, как следствие, массовое добровольное увольнение наиболее ярких экспертов и сотрудников.

«Что происходит в Министерстве природных ресурсов РФ?» Евгений Шварц.
Один из представителей международной негосударственной экологической организации считает, что коррупция в Министерстве природных ресурсов РФ приводит к разложению государственной структуры в сфере охраны природы. Но в тоже время общественные организации получают уникальную возможность привлечь для работы опытных специалистов, увольняющихся из МПР РФ. Об этом НПО еще несколько лет назад даже не могли и мечтать.

Раздел II.

Экосистемы, требующие особой охраны.

«Горы Западного Тянь-Шаня». Анатолий Ковшарь.
Главнейшая особенность растительного покрова Западного Тянь-Шаня – широкое развитие полусаванн в сочетании с высокоствольными арчовыми лесами. Биологическое разнообразие территории одно из самых высоких в СНГ. Уникальность региона определяется еще и тем, что здесь сосредоточены исходные формы многих культурных растений. Помимо дикой яблони и винограда, это тянь-шаньская люцерна и знаменитый тюльпан Грейга. Флора насчитывает свыше 1.5 тысяч видов цветковых растений, фауна – не менее 7 тысяч одних только беспозвоночных животных и более 400 видов позвоночных.

«Пустыня Кызыл-Кум». Екатерина Рачковская.
Кызыл-кум (в переводе «Красные пески») одна из величайших песчаных пустынь Азии, самая богатая по уровню биоразнообразия в Евразии. С середины XIX века в связи с интенсивным антропогенным воздействием происходят опустынивание, деградация пастбищ, исчезновение естественных растительных сообществ.

«Тугайные леса в дельте реки Аму-Дарья».
Тугайные леса – это феномен пустынь Средней Азии, сложный пойменный комплекс внутри которого на узком пространстве от уреза воды до горячего песка бархана умещаются заросли тростников, кустарников и плотные галерейные леса. Разнообразие флоры и фауны не менее уникально. Недостаток пахотной земли и пастбищ для развития сельского хозяйства послужил причиной уничтожения тугайных экосистем.

«Реализация планов по сохранению биоразнообразия в Узбекистане». Марк Энсти.
В 1998 году президент Узбекистана господин Каримов лично подписал «Национальную стратегию и план действий по сохранению биоразнообразия Узбекистана». В статье дается анализ реализации первого этапа этой стратегии, часть которой направлена на поддержку и развитие сети особо охраняемых территорий.

Раздел III.

Виды животных и растений находящиеся под угрозой исчезновения.

«Кулан в Средней Азии». Ольга Переладова, Валерий Кузнецов, Рыспек Байдавлетов.
Интенсивная работа по разведению кулана (*Equus hemionus*) в 1960–1990 годах спасла его от исчезновения, но в последние годы численность этого вида снова резко упала. В настоящее время разработан план по спасению кулана и в его реализации принимают участие не только эксперты из Туркменистана, но и международные природоохранные организации.

«Джейраны в Средней Азии». Ольга Переладова.
Джейран – небольшая грациозная антилопа, представляющая род газелей. Веками джейраны были самым распространенным охотничьим трофеем. Но в начале 80-90-х годов двадцатого века из-за браконьерства поголовье этой антилопы катастрофически снизилось. Государства Средней Азии ищут пути восстановления популяции джейранов.

Раздел IV.

Устройство и обеспечение охраны природы.

«Спасение переднеазиатского леопарда в Туркменистане». Виктор Лукаревский.
Животноводство – основа жизни местного населения в ряде районов Туркменистана. Нападения переднеазиатского леопарда (*Panthera pardus*) на домашний скот вызывают негативное отношение местных пастухов к этому зверю. Чтобы ликвидировать возникшую конфликтную ситуацию Фонд охраны дикой природы (WWF-RPO) выработал ряд оригинальных решений как компенсировать местному населению ущерб, причиняемый леопардом.

Раздел V.

Для обсуждения.

«Россия в свете климатических изменений». Елизавета Цельдт.
Последние научные исследования, проведенные под эгидой Фонда охраны дикой природы (WWF-RPO) зафиксировали определенные тенденции в изменении климата в России. Изучение этого вопроса показывает, что это явление пока не приносит существенного вреда дикой природе и биоразнообразию, но все же необходимо быть готовыми к тому, чтобы помочь некоторым наиболее уязвимым видам животных адаптироваться к условиям потепления.

Раздел VI.

Сохранение лесов.

«Актуальные проблемы лесной политики России». Александр Исаев.
Во избежание нерационального использования лесных ресурсов правительством России в самое ближайшее время должны быть решены такие крупные задачи, как налогообложение, улучшение системы управления и контроля над приватизацией лесных угодий, а также создание необходимой для этого законодательной базы.

Раздел VII.

Деятельность неправительственных организаций.

«Работа негосударственных экологических организаций за последние пять лет». Евгения Буровцева.
На основе интервью с некоторыми руководителями негосударственных экологических организаций дается анализ деятельности этого общественного движения. Опыт проведения всероссийского референдума за запрещение ввоза в страну отработанных ядерных отходов и разработки экологической доктрины страны позволил неправительственным организациям стать более весомым звеном в цепи явлений связанных с охраной природы.

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