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### ON THE COVER
Drawing for the March for Parks’96 art contest by Luda Shumakova.
12 years old.

The Biodiversity Conservation Center is a Russian non-profit, non-governmental organization aiming to preserve the biological diversity of Northern Eurasia. BCC’s programs help to conserve wilderness, endangered species and ecosystems, promote public environmental education, and assist other nature conservation groups to achieve these goals.

**Russian Conservation News is produced with support from the John D. and Catherine T. MacArthur Foundation, Weeden Foundation, USAID/ISAR, the Echoing Green Foundation, and the Pocono Environmental Education Center.**
Voice from the Wild
(Letter from the Editors)

In our seventh issue of Russian Conservation News, we bring you a spectrum of hopeful and discouraging news. On the protected areas front, we have some encouraging news about the efforts of Zapovedniki and National Parks throughout Russia and beyond its borders. Although the single Zapovedniki system of the Soviet Union has collapsed and the former republics are traveling along separate paths of development, many protected areas are now reuniting to assist each other and share information during the unstable period. One organization that is facilitating this “reunion” is the Commission on National Parks and Protected Areas (CNPPA) of Northern Eurasia, which is developing a common Action Plan for protected areas. With sincere respect and admiration, we support the efforts of environmentalists and protected areas managers in Ukraine, Belarus, and the Central Asian States in their struggle to preserve nature conservation despite extremely tough conditions.

April was an exciting month for Zapovedniki and National Parks of Russia, as the second Annual March for Parks was held across the country, and even in a few other countries of the former Soviet Union. This bright and happy celebration occurred in about 100 individual sites, making it one of the most widespread nature protection actions ever in Russia! March for Parks has revealed that a large number of people are already eager to devote their skills, energy, time, and sometimes even health to preserving their natural riches. And, what’s even more important: March for Parks has made people think about nature conservation and the treasures of protected areas, and it has attracted many allies to Zapovedniki and National Parks.

In this issue, we provide a comprehensive view of the Caspian Sea region. We are deeply concerned about the drastic changes in habitats there, and about the possible outcomes for both humans and wildlife. We are witnessing a drama in which people are trying to impose their own plot on a natural stage. Will we be able to find a solution for the dilemma of politics and economy vs. ecology? Or could this developing crisis become a stimulus for an integrated approach to conservation and development?

While big-eyed baby Seals and majestic Bald Eagles arouse sympathy even in people far removed from conservation work, we would like our readers to better understand and appreciate many lesser known, yet endangered life forms. In this issue we take a look at popular views of the illegal trade in butterflies: at the nesting and flocking patterns of the Great Knot, summer resident of farflung mountainous tundras; and at the Markhor goat population of Tadjikistan, which has survived mainly because its birthing habitat is nearly inaccessible to humans and to rival species.

Overall, compiling this issue renewed our sense of wonder at the uniqueness and marvelous life-sustaining qualities of habitats and species in this part of the world, so many of which are endangered. Perhaps from the Caspian we can learn the lesson of respect for the larger picture - one that is painted on a scale too large for ordinary human perception.

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PROTECTED AREAS

An Update on the Protected Areas of Northern Eurasia:
Report from the CNPPA Meeting

by Natalia Danilina

The Commission on National Parks and Protected Areas (CNPPA) of Northern Eurasia of the World Conservation Union (IUCN) met in Losiny Ostrov National Park, Moscow, from April 2-4, 1996. The meeting, sponsored by CNPPA and World Wide Fund for Nature, brought together a small group of protected areas managers and experts from eight nations: Azerbaijan, Belarus, Kazakhstan, Russia, Tadjikistan, Turkmenistan, Uzbekistan and Ukraine. Other participants included representatives from the Biodiversity Conservation Center of the Socio-Ecological Union, World Wild Fund for Nature, the Protected Areas Commission of the Russian Academy of Sciences, the Institute for Nature Conservation, the Center for Public Support of Protected Areas and Environmental Education, and Losiny Ostrov National Park.

Participants exchanged information on a variety of issues: how the network of Zapovedniki (strict nature reserves) and National Parks is developing and surviving during this unstable period; what significant changes have affected protected areas; what has improved, and what has worsened.

Faring worst of all are our colleagues from Tadjikistan, where civil war and a severe economic crisis are taking a toll on Zapovedniki. The reserved and laconic Abdulkadirkhon Maskaye reported the conditions in which protected areas staff, employees of environmental protection agencies, and NGOs are doing everything possible to try to preserve the Tadjik protected areas. The average monthly wage of an employee in environmental protection is the equivalent of 60 (US) cents, while a Zapovedniki director receives about $2.50. Zapovedniki, National Parks and Zakazniki (special purpose nature preserves) occupy 9.8 percent of the total area of Tadjikistan, representing montane coniferous-broadleaf forests, alpine meadows and other ecosystems virtually undisturbed by human activity. Today these areas suffer from less pressure than might be expected. This has happened not because protective measures have been effective, but because of the sharp
decrease in the total amount of livestock and the extreme poverty even of poachers, who can no longer afford to drive or fly to the wilderness areas.

Khabibula Atamuradov, Deputy Director of the Ministry of Nature Protection of the Republic of Turkmenistan, described the difficulties of this past autumn (1995). Natural resource-exploiting agencies launched a full-fledged attack on Zapovedniki, trying to make them self-sustaining through using the resources protected in the nature reserves. Conservationists and scientists succeeded in convincing the Republic's President of the important role protected areas play in maintaining the country's international prestige. On December 15, new regulations for Zapovedniki and other types of protected areas were approved in Turkmenistan.

All participants at the CNPPA meeting reported that financial support for National Parks and Zapovedniki has been drastically cut. Natalya Rysakova, of Kazakhstan, reported that she and her colleagues are especially worried about the withering scientific potential of the Zapovedniki in that Republic. As funding is cut, scientists are forced to leave their work in the nature reserves. Only by force of inertia is work on the "Chronicles of Nature" continuing. Scientists from academic institutes and higher institutes of learning are also practically unable to work in the protected areas because they lack funding for their research.

From Azerbaidjan, Azis Nadzhafov, Chairman of the State Ecology Committee, told of the active inclusion of Zapovedniki into international cooperative work. Nadzhafov also recounted their first experience attracting fiscal sponsors to support environmental work intended to develop Zapovedniki. Management plans will be developed for Shirvananski and Izmailinski Zapovedniki, with support from British Petroleum.

According to Valeri Pushkarenko and Aleksandr Filatov of Uzbekistan, among the greatest problems of that Republic (in addition, of course, to poor financing) are the tremendous deficit of informational resources and the decreasing quality of protected areas staff, particularly because of the lack of preparation and continuing education programs. Last year in the Republic of Uzbekistan there was a marked increase in efforts to promote public education. Now TV programs and an environmental newspaper are being produced on a regular basis. The representatives from Uzbekistan feel that it is imperative to develop a strategy for the development of protected areas management, part of which will require determining the appropriate combination of strict scientific nature reserves and areas with other types of protection regimes.

On the seminar's second day, we discussed the continuation of a joint Protected Areas Action Plan for Northern Eurasia. Tatiana Andreenko from Ukraine offered materials for developing an international network of protected areas, noting that at a December, 1995 seminar in Branski Les Zapovednik, suggestions were made for the creation of a joint Russian-Ukrainian Zapovednik. Vladimir Borieko, also from Ukraine, developed a plan for "Providing Public Support to Protected Areas and a Strategy for their Educational Activities."

Tatiana Korneeva of the Protected Areas Commission of the Russian Academy of Sciences proposed a project to coordinate the scientific work of Zapovedniki with other scientific bodies within a given region, a task that falls within the scope of our Action Plan. Evgeni Shvarts of the Biodiversity Conservation Center offered to work on that aspect of the Action Plan.

The Biodiversity Conservation Center presented its proposal to create an Association of Protected Areas of Northern Eurasia. While there are many in favor of such an Association and some work has already been done to establish it, financial support is still needed.

How can one summarize the results of the CNPPA meeting? First, work on the Action Plan has begun! Second, for me it was important to be reassured that the professional capabilities of experts from protected areas in our region are extremely high. Despite the difficult times and miserly wages, in practically all the Republics' Zapovedniki, National Parks, and the institutes managing them, some first-rate experts dedicated to their work do remain. An atmosphere of brotherhood permeated the seminar, as experts worked energetically with their like-minded colleagues. For many of our colleagues from the former Soviet countries, such an opportunity is rare and dear.

Natalia Danilina is the Vice-Chair of CNPPA of Northern Eurasia, as well as Director of the Center for Public Support of Protected Areas and Environmental Education in Moscow.
The Protected Areas Network Continues to Grow in Belarus

by Alexander I. Luchkov

Zapovedniki and National Parks are the most nearly perfect means of preserving nature in an undisturbed state. Belarus has only two Zapovedniki at present - Berezinski, created in 1925, and Pripyatski hydrological landscape Zapovednik, created in 1969 (please refer to the map on page 6). Two National Parks - the widely known Belovezhskaya Pushcha, created in 1939, and Breslavski Ozera, established just recently in 1995 - complete the network of high-ranking protected areas. The total area of these protected sites comes to 305.10 hectares, representing about 1.5% of the territory of Belarus. Zapovedniki and National Parks, along with more than 75 Zakazniki (special purpose nature preserves) and other natural sites now are subordinated to the Office of Presidential Affairs.

Belarus takes pride in its protected territories and natural and cultural sites, considering them symbols of national heritage and welfare. Belovezhskaya Pushcha National Park, which preserves what’s left of primeval forests in that region and is known for its European Bison (Bison Bonarius) population - the largest wild herd in the world - was entered into the UNESCO World Natural Heritage list. Berezinski Zapovednik obtained the status of UNESCO biosphere and was awarded the European Counsel Diploma in 1995.

Conceptions of further development of the protected areas network began forming in 1994, when the Supreme Council of Belarus adopted the Law on Specially Protected Nature Territories and Sites. Right after this event the Cabinet of Ministers confirmed a plan for the rational distribution of the natural protected areas and sites, with a proposal to establish eight more Zapovedniki and National Parks.

The system of protected areas as a whole has undergone some reorganization, and a special agency for Protected Areas and Forestry Management as a part of Office of Presidential Affairs was established. The processes of reorganization demanded the elaboration of consistent scientific and methodological approaches to planning and organizational work.

A system of protected areas management based on ecological and economic principles is being developed, and new forms of nature protection are being energetically implemented at different levels. The obsolete scientific and technical facilities require urgent renovation, and environmentalists are actively seeking international partnerships and collaboration, as well as non-governmental support sources. In 1994, with the support of the European Bank for Reconstruction and Development, a Belarus Fund for Zapovedniki was established. The Fund aims to coordinate all the various efforts of scientific institutions, organizations, and residents of Belarus and other countries in developing a network of Zapovedniki and National Parks for better research in and preservation of biodiversity.

The unique natural setting of Belovezhskaya Pushcha forests is being preserved now with the support of a Global Environmental Facility-sponsored target project for conservation of this massive biodiversity.

One of the most important duties in the protected areas is guarding the territories and executing the protection regime. Special inspection brigades composed of qualified policemen and forest rangers are effectively combating the poaching in the protected territories.

To provide additional support for the staff of Zapovedniki and National Parks, forestry-hunting grounds have been created in adjacent areas, with some recreational purposes intended as well.

The problems of protected areas have now become familiar to more than just the experts: environmental education has become one of the main priorities in Belarus. The problems of protected areas are widely discussed in the mass media, and a special newsletter, “Belovezhskaya Pushcha,” brings news of nature protection to a broader audience.

Urgent questions for protected areas include the necessity of training staff members and finding opportunities for sharing experiences. Some steps have been made in this direction, and seminars embracing various aspects of the protected areas' activities have become regular events for the staff.

Employees of Belarus protected areas have been able to attend training courses at some international centers and become familiar with the experience and practices of other countries in nature conservation. Belarus seeks international support in solving the problem of reindroduction of the European Bison into neighboring countries.

Although many obstacles of an economic and political nature hinder the successful development of the protected areas network, Belarus environmentalists are doing their best to preserve the unique natural features of this country for future generations.

Alexander I. Luchkov runs the Agency of Protected Areas Management, which is part of the Office of Presidential Affairs in Belarus.

Spring 1996, #7
Ukraine: Diversity and Flexibility in Nature Protection

by Tatyana L. Andrienko

The protected areas system of Ukraine aims to preserve the diversity of animal and plant species and landscape variety on every level — global, regional and local. The network of protected areas should besides bear some social functions of recreation, ecotourism and environmental education.

Ukraine has already come a long way from preservation of particular natural rarities to the formation of a rather representative nature protection network. The path has been difficult and sometimes even tragic; and the current period is not at all easy in terms of the further development of protected areas and the preservation of the accumulated valuable territory, yet Ukraine can be proud of its accomplishments.

Ukraine has formed an extensive and diverse protected areas network. The percentage of territory that is protected can be considered rather high (please see the inset), but the actual share of strict nature conservation (Zapovedniki) is not sufficient for Ukraine. The distribution of protected areas is fairly uneven, especially in the forest-steppe zones. The proportion of protected areas is highest in the western and northwestern forested regions of Ukraine and smallest in the southern steppe regions, which have been almost completely (up to 95%) tilled.

The number of various forms of protected areas comes to eleven; most of them can be grouped in five general categories adopted by IUCN (World Conservation Union). Fifteen Zapovedniki, occupying one-eighth of the total protected area, form the core of the strictly preserving territories. Three of them have obtained the status of UNESCO biosphere reserves.

The network of National Parks is developing extensively, and not just in the traditional way. A new category for the Ukraine, regional landscape parks, (which are very common in Central Europe), now comprises 11 units. This form matches nicely the specific situation of Ukraine, with its rather large population, high percentage of arable lands and amazing combination of historical, cultural and natural treasures.

Besides IUCN categories, Ukraine is developing special forms of protection, united in so-called “collection blocks,” forms designed for biodiversity conservation in culture and in captivity. Various botanical gardens, arboretaums, Zoos, along with parks and monuments of garden art created on the grounds of former estates (more than 500 now)

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**Ukraine**

- **Total area:** 4,494,000 hectares
- **Population:** 52 million
- **Arable lands:** 56%
- **Protected areas:** 2.8% (1,605,000 ha)
- **Strict nature reserves (Zapovedniki):** 0.34%

**Protected Areas**

<table>
<thead>
<tr>
<th><strong>Zapovedniki</strong></th>
<th><strong>Number</strong></th>
<th><strong>Area</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15</td>
<td>207,600 ha</td>
</tr>
<tr>
<td><strong>National Parks</strong></td>
<td>5</td>
<td>184,600 ha</td>
</tr>
<tr>
<td><strong>Nature Monuments</strong></td>
<td>~3,000</td>
<td>18,000 ha</td>
</tr>
<tr>
<td><strong>Zakazniki</strong></td>
<td>numerous</td>
<td>800,000+ ha</td>
</tr>
</tbody>
</table>

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**UKRAINE:**

1. Askania Nova Zapovednik
2. Ukrainian Stepnoi Zapovednik
3. Luganski Zapovednik
4. Krymski Zapovednik
5. Medobory Zapovednik
6. Chernomorski Zapovednik
7. Karadagski Zapovednik

**BELARUS:**

8. Berezinski Zapovednik
9. Prypyatski Zapovednik
10. Belovezhskaya Pushcha National park

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**© Russian Conservation News**
Protected Areas

represent the great diversity of beauties and wonders in Ukraine.

Nowadays Ukraine is facing land privatization, and this dictates the need for reinforcing the protected areas system. Two years ago conservation of the most valuable territories was accomplished by a presidential decree on the further establishment of protected areas. More than 800,000 hectares that are not permitted to become private property have been reserved, and certain activities such as tilling, melioration and construction were forbidden there. Some of them later obtained the status of Zakaznik or some other category. Many areas are still awaiting decisions on protection status and funding.

In September, 1994 the Program on the Future Development of the Protected Areas System in Ukraine was adopted. Multifunctional protected areas with high protection status—National Parks and, biosphere Zapovedniki—are supposed to have priority in future development. This will increase the role of protected areas in environmental education, ecotourism and regulated recreation. The Program set the goal of increasing the number of Zapovedniki to 3-4%, and in some regions up to 9-10%, by the year 2000. The trend of combining nature conservation with protection of memorial, architectural and folkloric sites will allow us to use the potential of two different directions of protection that already exist in Ukraine. In 1995, in accordance with the Program, Ukraine joined some international conventions.

Unfortunately, the tough economic situation in Ukraine has diminished the financial support directed to the protected areas system by the Program, thus undermining its development. One aggravating factor is the fact that Zapovedniki and National Parks do not have a single management agency. Zapovedniki are subordinated to five different agencies, with Ministry of Forestry and National Academy of Science at the top. Ukrainian Academy of Science is experiencing a financial and organizational crisis which can not help but affect the protected areas with the worst consequences. For protected areas, the question of merely surviving has arisen.

But some positive changes in protected areas management are underway. The Ministry of Environmental Protection of Ukraine is going to take charge of all new protected areas and of some already existing ones. This will help strengthen protected areas management and centralize funds. For a long time Ukraine has not had any public organization dealing with protected areas. Now the League of Protected Areas Activists, established in 1995, is expanding its activities and opening its doors for collaboration on protected areas issues. We believe that Ukraine has great potential for developing its protected areas system, having not only unique natural complexes, but also bright individuals doing their best in this field and desiring to achieve even more.

Tatyana L. Andrienko is the director of the Interagency Laboratory of the Scientific Fundamentals of Protected Areas Management. She is also chair of the League of Protected Areas Activists.

The Riches of Ukraine

by Oleg Listopad

Zapovedniki, although often small and not abundant, play a critical role in preservation of the riches of Ukraine. Their locations encompass all the geographical zones of the country. The northern part and the mountain regions of the Carpathians and Crimea are rich in diverse coniferous, mixed and deciduous forests. Gradually they are succeeded by the wide belt of the forest-steppe zone. Further to the south, the steppe stretches to the shores of the Black and Azov Seas.

Zapovedniki in Ukraine originated in the nineteenth century, when Baron Falz-Fein established Askania-Nova Zapovednik (please refer to the map on page 6). In 1917, in the midst of World War I, the Provisional Government of Russia sent emissaries with the special assignment to protect this Zapovednik, which today is the only one in Europe preserving dry steppe intact. In 1984 Askania-Nova obtained the status of UNESCO biosphere reserve.

In addition to Askania-Nova, two other Zapovedniki protect steppe in Ukraine: the Ukrainian Stepnoi (created in 1961), including four separated territories that represent various steppe zones, and Luganski (in 1968), preserving steppe, meadow and flood-plain forest landscapes.

The 1920's were marked by the Civil War's disastrous consequences, yet in 1923, Krymski Zapovednik was created on the forested slopes of the Crimean Mountains' main ridge and Kirkinitski Bay wetlands. The status of Zapovednik was restored in 1991, when the territory became just a game Zakaznik, but by public demand the status of strict nature reserve was restored in 1991. Together with Chernomorski Zapovednik, created in 1927, it aims to protect waterfowl in the Black Sea littoral region.

Karadagski Zapovednik, situated on the southeastern part of the Crimean peninsula, preserves a Jurassic massif that is unique for Europe, with its characteristic features of past volcanic activity. Ancient relic forests have been preserved in Medobory Zapovednik, a unique monument of geological history. Each Ukrainian Zapovednik has its own remarkable features that bring ceaseless value on its natural systems.

All of the fifteen Zapovedniki were created before 1990; since then, unfortunately, no territory has obtained that strict protective status. Now, when fewer and fewer wilderness areas are left in Ukraine, Zapovedniki are becoming more and more valuable as unique natural complexes.

Oleg Listopad is vice-chairman of the Ukrainian Ecological Association Zeleny Svit.
FOCUS:
The Caspian Sea — Habitats in Transition

From the Editors:
In the last issue of RCN, we called your attention to the desiccation of the Aral sea and the consequences for the environment and people in the region. Below we bring you a series of articles describing the problems in the Caspian Sea region, where a rising sea level is causing economic and ecological hardships for coastal communities. The changing sea level of the Caspian is thought to be part of a natural cycle (albeit poorly understood by scientists). Unfortunately, however, all too familiar are the political designs and profit driven ambitions which are preventing a coordinated strategy to react to the problems of the Caspian region. This case study should serve as warning to all nations as they pursue their consummation exploitation of nature.

The Caspian Sea is the world's largest inland body of water and a closed basin that lost its connection with the world's oceans about 3 million years ago, when the Greater Caucasus uplifted. Its area at present is more than 4,000 square km, and its depth varies from 1,025 meters in the south to 1-4 meters in the north. Its water volume exceeds 80,000 cubic km, which is 4 times greater than that of the Baltic Sea. The sea level is below the level of the global ocean, and the mark -28 m was conditionally accepted as the basic level of the Caspian Sea. The sea's history is abundant with evidence of drastic sea-level changes, from +50 m to -34 m, and even during human history there were times when the Volga delta was situated 200 km further south than its present location.

The Caspian Sea is the location of dozens of oil fields of various ranks and is rich in oil resources; thus it has attracted special interest from many foreign companies. The Caspian fisheries, another rich resource of the sea, have long been actively developed. Now the sea could become a zone of political conflict. Until recently the Caspian Sea washed the coasts of only two countries - the Soviet Union and Iran. Mutual agreements determined the legal status of the sea, established the navigational regime and the location of the aquatic international border, as well as the rules of exploitation of resources. After the breakdown of the USSR, four former republics - Russia, Azerbaijan, Kazakhstan and Turkmenistan - along with Iran claim their rights to the sea and to exploitation of its resources. The legal status of the sea is being debated now and has not yet been determined. The controversial questions of rights to exploitation of biological and geological resources and responsibilities for nature protection are still unanswered. The interests of other countries in oil drilling and a contract with a consortium of western companies signed by Azerbaijan alone make ecological problems more complicated and urgent.
The Caspian Sea: a Natural Setting For a Very Human Scenario

by Dr. Nicholas Denisov

In our complex times, the fact that the Caspian Sea, without any human effort, ceased drying out, began rising and is now approaching its level of 1901 — its most stable position in the last 150 years (please, refer to the diagram) — has somehow gone unnoticed. What a wonderful reason for rejoicing that the grandiose project of diverting northern rivers to supply the shrinking sea wasn’t accomplished! But there’s no joy — the appeals to “Save Caspia!!!” have almost immediately changed to “Save us from Caspia!!!” on both the local and regional levels.

And according to the new scenario, a mighty structure, the Ministry of Water Resources (Murovkhnoz), recently transformed into four separate institutions in four independent states after the breakdown of the USSR, has put forth a new, grandiose five-year plan of Caspian region control, Program Caspia. The main goal of this program is stabilizing the sea level in patterns favorable for the economy through accomplishing a series of regulatory and reconstructive measures and monitoring programs. This very Ministry headed up the promotion and execution of the plan to rescue the desiccating sea, and now with the same fervor is ready to battle an advancing sea that is flooding shoreline structures and settlements. Areas left dry by the receding water were incorporated into intensive economic activity without reasonable proof that the level would only continue to drop. Now we are facing the consequences of those imprudent decisions and the possibility that subsequent actions will also turn out to be unwise.

What, in fact, is going on with the Caspian Sea level?

We must confess that science does not have an appropriate answer to this question. Hypotheses are rampant — and most of them can be clustered into three groups: hydroclimatic, geological and anthropogenic — but no one theory is supported with enough data and observations to be reliable for the prognosis of future events. Until the sea level began to rise in 1978, changes in the discharge of the rivers supplying the water were considered the most probable reason for the long-term level dynamics. Paleographic, archeological and historical data, as well as direct observations, revealed an intricate periodicity of fluctuations in the sea level that is related to changes in solar activity, oscillating processes in the atmosphere and induced transformations (of varied intensity) of global and local climates.

Climatic changes affect the components of the water balance for the sea: river and ground water discharge together with atmospheric precipitation as contributing factors and evaporation and outflow rate to the Kara-Bogaz-Gol Bay as outgoing components.

The prognosis that a stabilization and slow rise in water level would occur in the middle of the century was contradicted when the sea was actually observed to continue desiccating. As an explanation, the concept of anthropogenically reduced discharge of rivers — the so-called “irreversible losses” — was put forward. That period — the 1950’s and 1960’s — was the time of construction of the huge regulating dams of the Volga hydroelectric system (now the Volga itself has five major hydroelectric stations, besides the numerous ones on all its tributaries). A large portion of the rivers’ water was needed for filling the huge reservoirs, which increased the evaporation factor. New farming policies, calling for extensive irrigation, also required additional water uptake. As the Volga provides more than 75 percent

Diagram showing the changes in the Caspian sea level. (Reprinted from the technical report of the Governmental Commission on the Caspian Sea Problems, 1992, with more recent data added)
of the total river inflow, these factors, altering the river’s routine, were considered primary in affecting the dynamics of the sea level. Because no cutbacks in human activities were expected, the fear of catastrophic sea desiccation and severe damage to the fishing industry dictated the development of urgent measures for the sea’s rescue. Therefore a project was proposed, born as part of Stalin’s Great Plan for the Transformation of Nature (please refer to the inset on page 9).

This project proposed diverting some of the flow of northern rivers to the Caspian Sea, bringing additional water to the Caspian through a complicated system of dams and canals, closing the Kara-Bogaz-Gol Strait and damming the shallow northern part of the Sea. In promoting and executing these ideas, the Minvodhaz pursued its own interest in gaining millions of additional rubles for itself, ignoring contrary evidence as “minor factors” and neglecting the consequences of its proposed actions. As we see it now, the concept of “irreversible losses” and belief in an inevitable downward trend in the sea’s water level were based on unreasonable estimates and often unreliable data about industrial water intake and drainage. The water level in the Caspian Sea stopped falling and had already been rising for three years when the first stage of this project was executed: the strait linking the Caspian Sea with the Kara-Bogaz-Gol Bay was closed. The irresponsibility and unpredictability of this project is evident in the words of one of its authors, G. Voropaev: “The cessation of flow into the bay is causing its gradual desiccation, intensive salt deposition and transformation of the bay into a dry salty cauldron. Changes of other hydrochemical and hydrological parameters should also be expected, and they are rather unpredictable because transformations in the environment here do not have any analogies anywhere else.”

Those “unexpected” consequences have included increased oil pollution of the Caspian Sea, because earlier the Kara-Bogaz-Gol Bay would accumulate the oil film from the entire eastern part of the sea, acting as a natural oil trap; the collapse of the chemical industry, due to drastic changes in the composition of and technological qualities of salts; salt storms induced by the bay’s desiccation, which then spread salts over vast territories and caused salinization of soils. Only in 1992, by a decree of the Turkmenistan government, was the dam between the Caspian Sea and Kara-Bogaz-Gol Bay destroyed, and only then did the natural exchange of waters begin to be restored in this system.

One of another theories of the sea’s dynamics is purely tectonic. It suggests that processes of periodic alteration of crustal strains (compression and extension) cause both neotectonic shifts in the sea floor and coasts, significantly changing the volume of underground discharge into the sea. The rhythms of these processes are inferred from seismic data. The scale of induced transformations in basin size, underground run-off and location of the possible drainage zones can be assessed only by indirect data. The most appropriate analogy for such a system is a giant sponge releasing additional water during its stage of compression and sucking the water back in during its stage of extension.

Nowadays it is accepted that both processes — climatic and tectonic — contribute to the Caspian Sea’s dynamics, along with the inevitable overlayering of various anthropogenic factors, but on a much smaller scale. The latter can have both negative and positive effects. For example, increasing the water uptake for industry results in lowering the water level; the spread of oily film on the water’s surface results in less evaporation, contributing to an increase in water level.

Currently, economic hardships, the general transformation of society and the financial crisis in science in the former Soviet Union have resulted in very poor or almost nonexistent measurements of the components affecting the water balance in the sea. The actual fluctuations of the Caspian Sea level can be assessed using only mean data collected by season or year. But the hydro-meteorologic network has collapsed, and observation posts have ceased functioning. Thus the numbers for the sea level rise on the eastern and western coasts can differ by 30 centimeters, twice as large as the average annual rise. This unregulated situation allows local administrations and powers to cry, “Save us, we’re drowning!” even when they have only spring floods or wind floods.

Taking into account the complexity of the forces affecting the Caspian Sea, economic activities and all construction projects in the region should be prohibited between the water level marks of -25 and -29 meters. Important sites and those intended for long-term use should be located higher than -20 m - the figure known from history. Also urgently needed are aerospace and geological/geophysical monitoring of the behavior of the coast line and complex studies of littoral zones.

The most important point is to avoid making imprudent decisions with great expenditures directed at a “struggle with wild nature.” We should bear in mind that the dynamics of the Caspian Sea is still largely unknown, and any attempts to control it will just lead to a waste of money, in the best-case scenario, as in the Kara-Bogaz-Gol project, or to a regional catastrophe in the worst.

Dr. Nicholas Denisov is the Leading Scientific Researcher in the State Oceanographic Institute. He executed the duties of Secretary of the Governmental Commission on the Caspian Sea Problems in 1992, 1993.

Greater Flamingo (Phoenicopterus ruber). Reprinted from V.E. Flint et al., A Field Guide to Birds of the USSR.
Sea-level Rise Now: a Caspian Drama

by Salomon B. Kroonenberg, Nikolai S. Kasimov, Gennadi A. Krivonosov

All around the world, ecologists, politicians and ordinary citizens like you and me are dreading the coming global sea level rise. The cause is known, or at least we think so: the increase of carbon dioxide in the atmosphere leads to global warming, the melting of polar ice-caps and thermal expansion of the ocean waters. In the past century, the global sea level has risen by about 0.15 cm. For the next century, most estimates give a rise between 0.5 and 1.0 meters, which means a three- to six-fold increase in the rate of sea-level rise. What will the consequences be?

Well, let’s look at the Caspian Sea, because there the sea level has risen about three meters in the past twenty years! A hundred times faster than the global rise over the past century! Whoever looks at the Caspian coast sees a leap into the future, a film played at a speed a hundred times faster than normal. Every year of sea-level rise in the Caspian is a century of sea-level rise in the world’s oceans. Villages are drowning, beaches are disappearing, oil fields are being flooded, soils are becoming saline, storms are reaching unprecedented heights, and natural habitats are changing at a bewildering pace, to the dismay of birds, fishes and those who study them.

There is reason enough to speak of unpredictability of the Caspian Sea (please see the inset). From the turn of the century to about the 1930’s, the water level was almost constant, around -25 m below the global ocean level (please see the diagram on page 9). Then, in the thirties, the sea level started to fall at an alarming pace, even as fast as 1.7 m between 1933 and 1940 alone, and the drop continued until it reached the -29 m mark in 1977. The results were disastrous. Canals dried up, orchards were abandoned, harbors had to be dredged, the salinity of the Caspian Sea increased and fish catches were reduced by half because many fish species could not reach their spawning grounds anymore. All predictions indicated that the sea level drop would continue.

The level of the Caspian Sea is controlled mainly by the inflow of fresh water from the Volga River (80%) and other, smaller rivers (20%) on one side of the equation, and by evaporation from the surface of the Caspian Sea on the other side. This is precisely one of the main reasons for the unpredictability of the Caspian’s water level. While the Volga regime is controlled by precipitation in the moist temperate forests of the immense Russian plain, the Caspian sea itself is situated in a desertlike area, with less than 150 mm of annual precipitation locally. Short-term weather changes and long-term climatic changes do not affect both areas in the same way, nor even at the same time nor the same rate. Some scientists, such as V.I. Naydyonov, even think the level of the Caspian Sea is a typical example of chaotic behavior.

Destruction of a house due to sea level rise at Minus, Dagestan.
Photo by S.Kroonenberg.
Focus

But in 1978 the sea level began rising again. At first this was still taken as a minor oscillation, but as the sea-level continued to rise, all previous predictions were abandoned. A flurry of new studies in which more than 200 scientists from 26 different Russian institutes participated now predict the sea level to reach -26 m (most conservative) to -21 m (boldest) in the near future.

The consequences of the present-day sea-level rise depend on the type of coast involved. The steep western coast of the Caspian Sea, in Dagestan (please refer to the map on page 8), is a sandy barrier coast, not unlike the Alabama coast. Each year the barrier encroaches upon the land some 35 meters. A village just south of the old Persian town of Derbent is choking in the sand barrier. A whole street parallel to the shore has disappeared under the sand, and the few houses that still stand are full of sea sand. Yet people have not abandoned them because they have nowhere else to go.

Dagestan Coastal Defense, an organization based in the Dagestan capital of Makhachkala, is trying to avert further encroachment with provisional structures, but without much success so far. Around the town of Izberbash, gas and oil extraction plants, both active and abandoned, have fallen prey to the abrasive forces of coastal surf, leading to considerable pollution.

On the Turla'li part of the coast, near the airport of Makhachkala, the sand barrier is separated from the mainland by a lagoon, and each year more terrain is being flooded by the lagoon. Aerial photographs show that fifteen years ago, the coast was dry sand, but now a whole succession of salt-tolerant vegetation is starting to develop in the lagoon. Further ashore groundwater is rising quickly, causing capillary rise, evaporation, and ultimately salinization of soils.

Further north in Dagestan, in the town of Kaspis'k, the beach, once 200 m wide, has disappeared completely, and concrete structures have been set up in a great hurry to protect the seaside quarter of apartment buildings from erosion and collapse. In the delta of the Sulak river, still further north, a village by the same name is threatened with being cut off entirely from the land, as the sea water unites almost entirely with the main branch of the river. The contours of an abandoned fish factory are visible far offshore. A village situated on Chechen Island, at the northern end of the Agrakhan sand spit, is already completely flooded. And this is not temporary flooding, as we so often see after river floods or coastal hurricanes: this is flooding with no end in sight.

The flat coast of the Kalmykian Republic, on the northwestern part of the Caspian Sea, is mercilessly exposed to severe southeastern storms that strike twice a year. Waves up to three meters high wreak havoc in the city of Lagan, and its sewage plant has already been permanently flooded by the sea-level rise. Make-shift dikes are being constructed and washed away over and over again.

The largest area threatened by inundation is the enormous Volga delta, only slightly smaller in size than the Mississippi delta, and one of the largest wetland areas of Europe. Astrakhanski Zapovednik - a UNESCO Man and Biosphere Nature Reserve - preserves the biodiversity of this area on the three separated sites along the northwest coast of the Caspian (please see the inset).

The food chains in this enormous wetland area are very sensitive to changes in sea level. Most birds thrive on fish, which depend themselves on aquatic vegetation and micro plankton living between the Vallisneria sea grass fields on the shallow sea bottom in front of the delta. This area, the so-called "avandelta," stretches at least 80 km offshore with a water depth not more than 1-4 m. Sea level rise now endangers the sea grass fields: as they are being progressively drowned, they receive less light with the deepening water and are more vulnerable to storm waves that reach the coast and rework the sediment on the bottom. The whole shallow-water ecosystem cannot simply move upstream to newly drowned ground, because further upstream the nature reserve ends, and there are only agricultural lands and settled areas in which a large part of the biodiversity disappeared long ago.

If sea level rise continues for another one or two meters, the entire nature reserve will disappear underwater, except for the high willow trees that line the intricate creek pattern of the delta. Together with the International Institute for Aerospace Surveys and Earth Sciences in Enschede, the Netherlands, and with funding of the Netherlands Science Foundation, we have designed a Geographic Information...
System (GIS) for managing the Astrakhan Zapovednik under conditions of a rising sea. This system designs scenario maps to show where the most threatened areas and habitats would occur at each particular future sea level; managers could then act accordingly to protect or rescue specific biota or ecosystems.

Sea level rise is also leading to a redistribution of Volga sediment in the delta. Much of it will be deposited on formerly dry lands instead of being transported further offshore.

The rise of the Caspian Sea poses an excruciating dilemma: what comes first, ecology or economy? Should the sea have its way, or should the land be protected by dikes? The director of Astrakhanskii Zapovednik, the Astrakhan Water Management Board, was delighted when I [Kroonenberg] first met her in 1993: "Dutch! Dikes!" Unfortunately for her, Dutch government policy is now moving away from bold plans for new polders in its own country, emphasizing instead the great ecological values of wetland areas. The Russian federal government funds construction of urgent protective measures for the most threatened areas on a year-to-year basis, but there is no clear choice so far for economy or for ecology, and the promised federal five-year plan - Program Caspii - still awaits approval.

The main question is how long the sea-level rise will go on, and to what mark. If we could know that sea level would stop at -25 m, the need for large-scale construction would be slight. But if it goes on to -20 m or higher, the economic damage, pollution and human suffering will be so great that few would like to give full preference to environmental protection.

Unfortunately, we still cannot predict how long the sea will continue to rise. Better predictions require more scientific research. This should be our number-one priority. Many organizations, both in Russia and abroad, such as the United Nations Environmental Program and Earthwatch, are taking an interest, and the European Union has indicated the Caspian Sea is one of the priority subjects in their INTAS and INCO-Copernicus program. Nevertheless, the Caspian Sea tragedy is getting far less attention and funding than the Aral Sea desiccation. Which is worse, drying up or drowning?

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Dr. Nikolai S. Kasimov is professor of Landscape Geochemistry and Dean of the Department of Geography at Moscow State University.

Gennadi A. Krivonosov is Director of the Astrakhan Zapovednik.

For more information on the history and dynamics of the Caspian Sea, see Sergei N. Rodionov, Global and Regional Climate Interaction: The Caspian Sea Experience (Boston: Kluwer Academic publishers, 1994).

Waterfowl Wintering Grounds on the Eastern Caspian in Danger

By Vladislav I. Vasiliev and Mirra E. Gauzer

For quite some time the littoral shallow waters of the eastern part of the Caspian Sea have attracted tremendous numbers of waterfowl from Central Russia, Eastern Siberia and Kazakhstan for wintering. During the spring and autumn flights, 5 to 8 million birds belonging to 120 species stop over in the region. Representatives of rather abundant species such as Coot, various Diving Ducks, Mallard Duck, European Teal, Mute Swan and some Gulls come here, along with several rare and endangered species: Flamingo (Phoenicopterus ruber), Bewick's Swan (Cygnus bewickii), Purple Swamp Hen (Porphyrio porphyrio), White-headed Duck (Oxyura leucocephala), Great Black-headed Gull (Larus ichthyaetus), and White-tailed Eagle (Haliaeetus albicilla). Now, however, several environmental and economic factors threaten these populations, the worst among them, poaching.

The earlier, long-term recession of the Caspian Sea (from 1882 to 1977) has been supplanted by a rapid rise in the water level, which has risen by 2.5 meters in less than twenty years. This has led to expansion of the wetlands areas, so that they now occupy an area of 284,000 hectares. Due to intensified successional processes, several bays and the mouth of the Atrek River have increased their biological capacity. Further transgression by the sea will provide favorable conditions for the waterfowl wintering grounds to regain their size of the 1930’s, if no other factors, especially anthropogenic ones, interfere.
But now it is evident that this positive natural process is opposed by human activities. The transitional period in Turkmenistan’s economy has borne severe consequences in the social, technical and management spheres, with an inevitable deterioration of nature protection. Because Turkmenistan finds itself at an economic disadvantage, establishing international joint ventures with such firms as Darmag-Chleken (Holland), Keimir (Argentina), Petronaz (Malaysia) and Lukoil (Russia) does not provide the necessary conditions for implementing sustainable and non-invasive oil exploration and extraction technologies. Current standards of oil deposit extraction allow constant leaking of crude oil - up to 11.5 kg per day, and in the case of an accident, up to 28 tons are allowed to spill in a three-day period.

The Caspian Sea is well-known for its strong surface currents and “wind floods,” and these make oil spills dangerous for littoral zones because they degrade the wetlands. Other significant sources of pollution are the marine moorings (especially those of oil refineries) and coastal pipelines, which are often obsolete and damaged.

One of the most dangerous threats is the incredible growth in poaching of waterfowl. Severe social and economic conditions - lack of food for much of the population and a high unemployment rate - have caused this increase. Hunting and fishing have become the only source of money and sustenance for many families. Not only the increased hunting rate itself, but also the related factor of disturbing the birds’ natural rhythms have negative impacts on the ecological situation in general. For example, more people now use noisy motorboats for hunting and fishing; poachers shoot birds at night using headlights, interrupting the birds’ normal period of rest. Increased traffic on highways passing near the wetlands, expansion of privately owned herds of cattle and overgrazing in areas near the wetlands compound the negative effects on winter habitation for waterfowl. In spite of the generally worsening situation for waterfowl, the 1995 hunting seasons in the Krasnovodsk and Gasan-Kuli hunting grounds were prolonged, without reason, to five-and-a-half months. In this situation Zapovednik (strict nature reserves) should play a key role in the protection of wintering grounds, especially Hazarski (formerly Krasnovodski) Zapovednik, despite the general crisis in the protected areas system.

On the brighter side, a favorable political movement among the governments of the various Caspian states, begun in Moscow in 1994, is continuing today. Russia and Turkmenistan in 1995 adopted a mutual agreement on creating shared structures for monitoring the ecosystems of the Caspian Sea, protecting its bioresources and elaborating joint programs. Considering the fact that five countries have access to the natural resources of the Caspian Sea, and that pressure on waterfowl resources has increased in recent years, international agreements on the rational exploitation of these resources must be developed. Russia, Kazakhstan, Turkmenistan, Azerbaijan and Iran should determine together the role of each particular country in protecting the Eastern Siberian-Caspian-Nile waterfowl population. It is important to develop scientifically based, equivalent quotas for annual catch in each country. Protected areas of various ranks, which preserve important sites for nesting, flights and wintering of waterfowl, require mutual efforts in supplying scientific, technical and financial support. Waterfowl are more than just the national treasure of any one country, and no country can preserve them alone. So let’s unite our efforts and start an international campaign for the protection of Caspian waterfowl.

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**Will Waterfowl Survive the Economic Crisis?**

*by A.A. Karavaev*

Thousands and thousands of birds are often concentrated for wintering in the relatively small areas of the Caspian Sea wetlands of Turkmenistan. Flamingos, Swans, various Ducks, Coot and other birds become vulnerable as hunting targets. For the local population hunting was always a popular occupation, but the regulatory measures established during the Soviet period provided relatively safe conditions for the protected species. After the dissolution of the USSR, however, many environmental achievements have been neglected or forgotten. The strict regime in many Zapovedniki (strict nature reserves) has undergone significant alterations, sometimes permitting grazing, fishing and tillage. Some territories have been reduced in size, and hunting periods prolonged.

Several factors now affect the status of the waterfowl populations and their prospects for existence. The crisis in governmental financing has caused an almost complete collapse of enforcement of nature protection regulations. Some staff members of the Zapovedniki and Committees of Nature Protection have either quit their jobs to seek higher income (currently their monthly salary equals $5-12) or have begun openly poaching themselves.

The lack of rangers and the extremely poor diet of the local population because of economic hardship make poaching one of the main sources of sustenance for people near the Caspian. Our data show that hunters who used to go after prey two to three times a year now hunt four to six times a month. But what else they
Focus

can do, when all essential foodstuffs are distributed, as in Krasnovodsk, only by rationing norms: meat at 2 kg per person per month, sugar at 1 kg per month, butter at 0.4 kg per month, and very often people do not even think of this. Local bazaars offer meat and other products for sale, but at such incredibly high prices that most people cannot afford them. One restraining factor for the growth of hunting has been the lack of gunpowder, shot and other ammunition in local stores. Hunters often had to use homemade shot and artillery powder.

Poaching has nevertheless grown to an unbelievable volume in recent years. On the weekends in January and February 1995, as many as 20 to 47 motorized vehicles could be seen at one time in Krasnovodsk Bay from which hunters were shooting Coots, Diving Ducks, Swans and Flamingoes. The average catch per boat was about 80 birds. Often group hunts of about 50 participants each were arranged on the protected territories in Balkhanski and Mikhailovski Bays and at Gasan-Kuli.

A survey taken on the northern part of the Turkmenistan shore of the Caspian reveals that no fewer than 248,100 birds were shot during the winter of 1994-95, a figure that includes only the daytime catch, since no data on night hunts were obtained. About two-thirds of this was taken using motorized vehicles. More than 50 percent of the catch consisted of Coot. Other birds such as White-headed Duck, Purple Swamp Hen, Great Black-headed Gull, Tufted Duck also fell frequently to hunters. If according to the game laws each hunter can take no more than 10 birds, our observations demonstrate that more than 70% of the hunters exceeded the quota, especially those in motorized boats. Hunters shooting from the shore or with light boats could only rarely reach the limits. The most remarkable feature of these hunts is that rangers did not report a single case of poaching during this period.

Aware that similar cases of waterfowl harvesting take place in other wetlands of Turkmenistan, in Azerbaijan and on their flight paths, we can acknowledge that the waterfowl's mortality rate exceeds their reproduction rate. Because many good and necessary laws and regulations adopted in Turkmenistan are mostly ignored, not only by the population, but also by environmental agencies, the question of control takes first priority. Turkmenistan by itself seems unable to organize enforcement of the proper laws. In the alarming situation with waterfowl, international agreements on game regulations and mutual control could be a partial solution. The establishment of an effective control system so that other countries can also keep track of the situation in Turkmenistan is the most necessary and urgent step we can take today.

A.A. Karavaev was formerly the Senior Scientific Researcher in Krasnovodsk Zapovednik. Just recently he migrated to the Caucasus and now teaches in Karachaevo-Cherkeski Pedagogical University. (He was the last scientific researcher at that Zapovednik.)

White-headed duck (Oxyura leucocephala).
Reprinted from the Red Data Book.

Sturgeons May Soon Disappear from the Caspian Sea

by Dr. Vadim Birstein

According to estimates by Dieckmann & Hansen, the oldest caviar-trading company in Europe, the international market demand for caviar in 1995 was 450 metric tons, while the legal production of caviar in Russia and Iran totaled only 228 metric tons. How did the market make up the difference? In part, by Sturgeon poaching in the Caspian Sea basin.

International caviar markets stimulate Sturgeon poaching. Caviar-lovers around the world gladly pay high prices for the delicacy of Sturgeon roe. Thirty grams of Beluga caviar in the well-known New York store "Petersian" sell for $65, for example, while the price of a kilogram of caviar on the black market in Moscow is $250. United States Commerce Department data show that caviar imports have increased 100% since 1991. Meanwhile, reputable caviar suppliers in Europe are being driven out of business by illegal trade: for example, from 1992 to the present, the German caviar market has been overwhelmingly by very cheap caviar of poor quality.

The Caspian has long been associated with Sturgeons and black caviar, but it may not be for much longer: Sturgeon populations there are rapidly declining. And poaching is not the only factor causing the drop in the Sturgeon populations. Disease, lack of access to spawning grounds, the rise in the water level and development of oil fields on the Caspian Sea shelf also threaten the survival of the remaining Sturgeons.

Three main commercial Sturgeon species inhabit the northern part of the Caspian Sea: Great Beluga (Huso huso), Russian
Sturgeon (Acipenser gueldenstaedti) and Stellate Sturgeon (A. stellatus). A fourth species, Persian Sturgeon (A. persicus), lives in the southern part, in Iranian water, and is harvested mainly by Iranian fishermen. Historically, two rivers were extremely important for spawning Sturgeons, the Volga and the Ural. After the construction of the Volgograd Dam in 1958-60, those Sturgeons that reproduced on the Volga River were cut off from 85% of their traditional spawning grounds. Beluga lost almost all of its spawning sites in this river.

To offset the decrease in natural reproduction, ten hatcheries were built in the Volga River basin in the mid-1950's; they annually released about 90 million juveniles of all three Sturgeon species into the Volga River and Caspian Sea. Further, Soviet law prohibited the harvesting of Sturgeons in the Caspian Sea. In the 1970's and 1980's, commercial Sturgeon fishing was allowed only in the Volga River Delta (at the northwestern end of the Caspian) and totaled 12 to 18 metric tons a year. Seventy-five percent of all Sturgeons and 80% of Beluga caught during that period were thought to have been hatched at the hatcheries.

In 1986-1987, a large percentage of Sturgeons were affected by a disease called “necrotic dystrophy.” The sick fish had anomalies in muscle structure and could not be processed at the fishery plants. The number of Sturgeons with tumors also increased significantly. Moreover, in the early 1990's, the majority of eggs released by spawning females appeared to be nonviable. Although the exact cause of this disease is still unknown, it was believed to be toxic chemicals released from factories on the shores of the Volga. Experiments testing the effects of oil products on Sturgeon juveniles supported this theory.

This litany notwithstanding, the main troubles started after the dissolution of the Soviet Union in 1991. Instead of one government with centralized control of the catch, four independent countries (Russia, Azerbaijan, Kazakhstan and Turkmenistan) and two autonomous republics (Dagestan and Kalmykia) began to harvest Sturgeons in the northern Caspian. Despite attempts to work out regulations of Sturgeon catch in the Caspian Sea basin, such an international agreement between the four former Soviet republics and Iran has not yet been signed. Since 1991, Sturgeon poaching in the new states, especially in the lower reaches of the Volga River in Russia, has increased dramatically. Most damaging is the catch in Azerbaijan, where it is legal to take Sturgeons not only in the rivers during the spawning period, but also in the sea. The sea catch destroys stocks of young fish and makes no economic sense, because females caught at sea are not mature, so caviar made of their roe is of very poor quality and cannot be sold officially on the international caviar market.

The lack of female Sturgeon with mature eggs has already resulted in commercial frauds. For instance, in the United States caviar made by poachers of roe from American White Sturgeon (Acipenser transmontanus) has been sold to airlines and hotels as Beluga caviar. Our analyses of caviar samples bought at New York gourmet stores showed that caviar of the Siberian Sturgeon (A. baeri) appeared on the American market as a substitute for Beluga caviar, and caviar of the Barbel (or Spiny) Sturgeon (A. noliventeris) was substituted for Russian Sturgeon caviar. Populations of Barbel Sturgeon are also declining rapidly; the Aral Sea population is already extinct.

Historically, the Caspian Sea population of Barb el Sturgeon spawned in the Ural River in Kazakhstan and the Kura River in Azerbaijan, but these populations were already small in the early 1990's.

The official catch of Sturgeon in Russia dropped by 90% in the first half of the 1990's; in 1990, it was 14.6 thousand metric tons, but by 1995 it had dropped to just 1.5 thousand tons. It is impossible to measure the illegal catch by poachers, but the effects of poaching are clear: natural reproduction of all three Sturgeon species in the Volga River has been completely destroyed. As I was told by the Caspian Fishery Research Institute in Astrakhan, nearly all of the Sturgeons migrating upstream to the spawning grounds below the Volgograd Dam in 1995 were caught by poachers somewhere between Astrakhan and Volgograd. The hatchery in that area could not catch enough breeders for artificial reproduction of Sturgeons.

The Beluga has experienced the worst pressure. Hatcheries located in the Volga River Delta caught only 35 Beluga individuals in 1995, not enough for artificial reproduction. Therefore, neither natural nor artificial reproduction of Beluga is going on in the Volga River now. Because the level of poaching in the Ural River—the last river where some natural Beluga spawning grounds still exist—is as high as in the Volga, it is clear that Beluga has stopped reproducing in the Caspian Sea basin.

The number of Sturgeons taken legally and illegally in the Caspian Sea basin threatens the existence of the commercial stocks in the region. It is evident that with this level of overfishing, the legal commercial catch will come to zero in just a few years. In his article "Ecocide in the Caspian Sea," Professor Henri Dumont, a Belgian participant in an international group of scientific experts that visited the Caspian Sea, recently wrote: "Like the Californian Condor, the Sturgeon's only chance of survival may be in captivity" (Nature, 377:673-674, 1995). This is, unbelievably, a very real possibility. Fortunately, some institutions have started to create captive stocks of various Sturgeon species. Additionally, the Sturgeon Specialist Group of the IUCN (The World Conservation Union) has proposed including all Sturgeon species in the 1996 IUCN Red List of Threatened Animals, with various types of threatened status for all species and populations.

Dr. Vadim Birstein is Chairman of the Sturgeon Specialist Group of the IUCN.
ENVIRONMENTAL EDUCATION

March for Parks - International Celebration of Natural Heritage

From the Northwest to the Far East: Marching for Parks across Russia, Ukraine, Kazakhstan, and Turkmenistan

by Margaret Williams

Earth Day 1995 marked the first attempt in Russia to organize a public campaign rallying support for the Zapovedniki and National Parks that make up this nation's unique protected areas system. About twenty protected areas and an equal number of NGOs, museums, clubs and other organizations held "March for Parks" events throughout the nation to raise awareness of the protected areas system. Coordinators of last year's event reported an almost surprising number of local success stories, including positive press coverage, offers of volunteer assistance, requests for information, and invitations to work with school teachers.

Throughout the summer and fall, news of the holiday and its ensuing successes spread like wildfire throughout Russia's protected areas. In 1996, thanks to the outstanding leadership of Irina Chebakova, Russian March for Parks Coordinator at the Biodiversity Conservation Center, as well as the energetic and enthusiastic efforts of individuals across the former Soviet Union, more than one hundred sites joined in the celebration "March for Parks" (and the count is still on!). As this issue of Russian Conservation News goes to press, Chebakova awaits reports from organizers in Russia, Ukraine, Turkmenistan and Kazakhstan.

Consider the geography of March for Parks: Events were held on the Kola Peninsula (Laplandski Zapovednik), Kamchatka Peninsula (Kronotski Zapovednik), Kurile Islands (Kurilski Zapovednik) and Sakhalin Island... all along the Volga River, on the Pechora River in Komi (Pechora-Ilychski Zapovednik), the Lena River (Ust-Lenski Zapovednik) in Siberia... on Vodlozerski Lake (Vodlozerski National Park) in the north, Lake Baikal (Pribaikalski N.P.) in Siberia, and Lake Kontokki (Kostomuksha Zapovednik) in Karelia... in the Ural Mountains (Shulgan Tash Zapovednik) and Altai Mountains (Altaiiski Zapovednik)... on the shores of the White Sea (Kandalaksha Zapovednik), the Black Sea (Sochi National Park) and the Sea of Okhotsk (Magadan Zapovednik)... along the Norwegian Russian border, Finnish-Russian border and Chinese-Russian border... (Please see the map on pp. 18-19).

March for Parks has been adopted across the former Soviet Union as a way to tell the public that Zapovedniki and National Parks are an important part of natural and cultural heritage that should be preserved forever!

Muscovites join the March for Parks

On Sunday, April 21, a large crowd of adults and children streamed down a wide boulevard towards Sokolniki City Park, to the ceremonial beat of the marching band accompanying them. Donned in hats, shirts and pins adorned with March for Parks logos, marchers made their way to the city park's main entrance, gathering curious passersby into their ranks.

In the city park, which adjoins Losiny Ostrov National Park, March for Parks events were opened with speeches from city and park officials and the Chairman of the Biodiversity Conservation Center, which helped Sokolniki Park organize the festivities. For the rest of the day, the large stage was washed with waves of children of all ages from throughout the Russian Federation. Contests, singing, and other performances were followed by a troupe of costumed folk dancers. Elsewhere in the park, volunteers led guided walks on a nature trail, and a hall was opened for visitors to view a photography and children's art exhibit celebrating Russia's protected areas and wildlife.

Across town, 16-year-old Dmitri ("Mitya") Ponomarenko, led a soggy group of 30 neighbors on a day-long garbage clean-up the Schukenski Peninsula Nature Monument. As rain poured down, kids of all ages and their parents darted about the long stretch of land that harbors a large number of mammal, bird and plant species.

"I've never seen so much joy over so much garbage," laughed Mitya's father, Sergei Ponomarenko. Sergei, the Director of the Laboratory of Ecological Designs, gave the volunteers a quick briefing on the peninsula's plant and animal life, surprisingly diverse given the nature monument's location in one of the world's largest urban areas. Mitya, a promising leader in the Russian environmental movement, also used the event to call attention to an illegal construction project on the peninsula by sending press releases and contacting local TV and radio reporters.
In Tver Region, Tsentralno Lesnoi Zapovednik staff sent an official letter asking for support to the region’s governor and held an “Open House” for local residents and administrators, who were invited to visit the Nature Reserve for a day. A roundtable discussion on protected areas was held, followed by final negotiations with land use agencies to create new, local-level protected areas. The Zapovednik also organized a children’s scientific conference entitled “To conserve nature is to love one’s motherland.”

In the Russian northwest, Kostomuksha Zapovednik held a scientific conference for local school children (“EcoProject ’96”), the older winners of which will visit the Zapovednik’s Finnish counterpart, while the younger winners will visit Pocono Environmental Education Center in Pennsylvania (USA). Contests for the best environmental pamphlets and drawings were also organized. Zapovednik staff gave an Earth Day presentation in honor of March for Parks.

Kenozerski National Park held a roundtable discussion on protected areas in Archangelsk Region, in conjunction with Pincezhski Zapovednik. Exhibits on the park were held in local village schools and libraries. A children’s drawing contest was organized with the theme “My National Park.” Finally, the March marked the final events of a public campaign to clean the park’s lakes: park employees and school children distributed pamphlets, picked up litter and met with local residents to discuss possible solutions to water pollution.

In Nizhni Novgorod Region, Kerzhenski Zapovednik held a two-week long March for Parks program, including a children’s concert, two clean-ups, a weekend camp for a Nizhni Novgorod environmental club, and a town meeting for the 700 residents of Rustai village where the Zapovednik is based. Participants included Rustai schoolchildren, Zapovednik staff and two environmental clubs, the Pink Flamingo environmental club and the Green Sail.

In south central Russia, Tsentralno-Chernozemni Zapovednik initiated a new environmental studies course, held a press conference, organized the planting of a “March for Parks Alley” of trees; kids from this region also participated in the nationwide drawing contest.

Sponsors for March for Parks Russia -’96 include the National Parks and Conservation Association (promotional materials, organizational support), Human-i-Tees Foundation (donated five hundred environmental T-shirts), the Eurasia Foundation and (financial support for Moscow March for Parks events), MacArthur Foundation (financial support for Russian March for Parks), ECONnections (financial and organization support), private donations, Sovavimo and Alpha-Design Printers (trail booklets), Paniniter (donated T-shirts), the World Wide Fund for Nature (donated cameras), The Center for Public Support of Zapovednik (financial support for nationwide drawing contests) and many volunteers. The Biodiversity Conservation Center expresses special thanks to Tatiana Lozowsky of Arlington, Virginia, for her donation of a sponsorship information package, used to recruit commercial sponsors for the March.
In the Ural Mountains, at Pripyshinski Bori National Park, a new arboretum was planned, which will be named the March for Parks Arboretum. A roundtable discussion on protected areas in Sverdlovsk Region was held in the city of Ekaterinburg, and a clean-up was organized. Since February, the park staff has been regularly publishing articles in the local newspaper. Other March events include publication of promotional materials and a film festival.

On the Kurile Islands, Kurilski Zapovednik held a "Holiday for Birds," with a special exhibit and outings, while children participated in a nationwide drawing contest about the Nature Reserves.

Children of Zapovedniki
The Biodiversity Conservation Center and the newspaper Zapovednik organized drawing and essay contests for schoolchildren who live in or near protected areas. The contest, called The World of Protected Nature, was nationwide. More than 600 works of art from more than 20 protected areas were sent to BCC from the north, the Far East, and from as far south as Turkmenistan. Of those drawings, paintings, sketches, 120 will be awarded prizes. Many were exhibited in Sokolniki City Park of Moscow, and some will be published in the children's journal "Flute."
Marching (for Parks) into the 21st Century

by Margaret Williams

"S"o, people, what will we leave behind for the next generation? Clear-cut forests? Polluted rivers?" Roman ("Roma") Popov asked his fifth-grade classmates also on stage, and the 200 other school children in the audience.

As part of the March for Parks Russia-’96, Roma and 30 other fifth graders from School No.8 in Yushkar-Ola, capital of the Marisk Republic of Russia, gave an hour-long show, replete with poetry, skits, story telling, music and even a gymnastics performance.

Ending in a flourish of singing and a cascade of balloons, the program focused entirely on protected areas and their role in conserving nature for endangered species, protecting habitat, carrying out ecological research and monitoring, and — last but not least — preserving the health of human civilization. The performers’ message to their fellow ten-year-olds: we all need wild nature, and we can all do something to help protected areas remain protected!

"Zapovednik" was the word of the day, mentioned in almost every performance. Whereas Zapovedniki (the strict scientific reserves unique to the former Soviet countries) are poorly understood in local communities, these kids are being exposed early to a new environmental awareness which Zapovednik managers themselves are promulgating.

The March for Parks program in Yushkar-Ola had begun earlier in the week, with a scientific conference for high school students organized by the head of Bolshaya Kokshaga Zapovednik’s education department, Svetlana Popova. Speakers at the conference gave a series of presentations on the flora and fauna of the Zapovednik and nearby Mariya Chodra National Park. In the National Park, thanks to the efforts of Chief Ranger Maskhut Safin, March for Parks events included a teachers’ seminar and a park-wide clean-up by local schoolchildren.

Zapovedniki and Public Education

Location: Marisk Republic
Year Created: 1993
Size: 21,400 hectares
Neighboring protected areas: Mariya Chodra National Park

Natural History: The reserve is situated in the Volga lowlands, within the southern range of the European taiga, west of the Ural Mountains and just north of the steppе zone. This Zapovednik got its name from the Bolshaya Kokshaga River, which meanders through the reserve on its way to the Volga River. Black cottonwood and oaks line the rivers and streams, while much of the higher areas are covered in pine forests, with some spruce and fir. The territory of the current Nature Reserve had been under the jurisdiction of a state Leskhoz, (forest management agency), which used the timber resources intensively. In these three years of strict protection, wildlife has increased, with wild boar, wolf and brown bear making more frequent appearances.

Species of interest: Red Data Book species include the Osprey (Pandion haliaetus), White-tailed Eagle (Haliaeetus albicilla), Black Stork (Ciconia nigra), Capercaillie (Tetrao urogallus); Yellow Ladyslipper (Cypripedium calceolus), Black cottonwood (Populus nigra), Orchids (Orchis sp.) such as Dactylorhiza majalis, and Epipogium aphyllum.

Threats: An aging oil pipeline on the northern border of the nature reserve, next to the Bolshaya Kokshaga River, threatens to crack or splinter in the near future, potentially contaminating the entire ecosystem downstream of the pipe. Other threats include frequent fishing violations in fish spawning areas, occasional trapping, removal of timber and unfavorable attitudes of local people towards the Zapovednik.

Among academics and practitioners in the field of Zapovednik management, a philosophical argument is brewing: to what extent should Russia’s Nature Reserves be opened to the public for environmental education? Aleksei Popov, Director of Bolshaya Kokshaga Zapovednik, makes it clear that he and his staff have no intention to bring groups of people to the Zapovednik. Instead, they will bring the Zapovednik to the people, through the schools, informational publications and mass media. When people want to experience nature first-hand, they can visit a National Park, a Nature Monument, or a Zakaznik (special purpose preserve).

The March for Parks programs in Yushkar-Ola were part of a large-scale effort of Bolshaya Kokshaga Zapovednik staff to enlighten the next generation of leaders, businessmen, ecologists and citizens. Director Popov has embraced public education ever since coming to the reserve in its first year of establishment, and he created an Education Department to implement his vision. Svetlana Popova, head of the Department, has developed educational brochures, contributed to local papers, held press
conferences, designed a year-long environmental studies curriculum for a local school, and continues to experiment in educating the public about the Zapovednik and protected areas.

Resources in the Zapovednik for such programs are few, however. Whereas many Zapovedniki receive some (albeit small) financial support from regional agencies, the local government in Mari-El Republic has never supported Bolshaya Kokshaga, the Republic's only Zapovednik.

"They created the nature reserve, then abandoned it," says Popov. In the meantime, the Director must find creative ways to continue programs in education and research, as most of the Federal government financing is used for salaries.

Margaret Williams is Editor of Russian Conservation News.

First Environmental Education Center for Zapovedniki Opens in Moscow

by Anya Menner

The eightieth anniversary of the system of Russian Zapovedniki was "celebrated" this year with massive federal budget cuts, putting the entire system on the verge of collapse.

In recent years, domestic environmentalists and protected areas managers have become increasingly concerned about the government's and general public's indifference toward their own national treasures, Zapovedniki and National Parks. National Parks and Zapovedniki directors first collectively identified public education as a priority measure to ensure the survival of Russia's unique protected areas network at a meeting of protected areas managers in Sochi in 1994. They articulated the need to interest the broad public in nature protection, creating new allies out of former opponents and expanding their support base beyond the federal government. Managers of protected areas realized that if the federal government was going to provide only dangerously low financial support, the local administrations could perhaps fill the gaps. A strategy to break the information vacuum was needed to reverse the long years of public hostility and indifference toward Zapovedniki.

But how can new public attitudes towards nature be developed? This task is to be undertaken by a new Center for Public Support of Protected Areas and Environmental Education. The Center, proposed by the Department of Protected Areas Management in the Ministry of Environmental Protection and approved for support by the Russia Programme Office of World Wide Fund for Nature (WWF), was developed with support of WWF-USA and WWF-International. The Swiss government and WWF signed a contract in December 1995 for five million Swiss francs to finance an extensive program for nature conservation in Russia, one of the priorities of which is the public education center.

The project leaders have tremendous plans and desires to make the Center successful. Natalia Danilina, Director of the Center, aware of the inevitable difficulties and obstacles, believes that general concepts will guide the early stage of the Center's formation. (She was formerly Deputy Director of the Department of Nature Reserve Management.) Through trial and error and continual correction, she and her colleagues at the Center will find appropriate solutions that will build a clear path toward further work.

The Center will develop new strategies in environmental education and public outreach and new methods of involving local and regional authorities in the life of these federal-level protected areas. Diverse working groups of experts will develop new methodologies. Teachers, psychologists, philosophers, sociologists, artists and environmentalists will contribute their plans, designs, ideas, and creative potential to develop interactive, vivid programs in public education. Along with the overall approaches, model projects for particular protected areas and regions will be initiated.

The Center will develop a publishing and distribution service to help Zapovedniki and National Parks in their outreach programs. Guidebooks, albums, brochures and other types of informational and promotional materials will be developed to arm the protected areas staff with needed resources. To attract wide public recognition of protected areas, the Center also plans to organize exhibits, contests, and advertisement campaigns and collaborate with mass media. Just recently they announced the first contest — for the best publication about a protected area.

Because its activities are oriented toward the long term, the Center will undertake a fundraising program to attract additional support for its publications, conferences and other educational projects. Suggestions regarding cooperation and interesting ideas about the Center's activities are always welcome.

Join us on our way to increase public awareness of our national treasures — Zapovedniki and National Parks.

Any Menner is Managing Editor of Russian Conservation News.
Promoting Nature Protection Among Indigenous Peoples in Zapovedniki

by Vladimir Boreiko

The survival and effectiveness of numerous Zapovedniki (strict nature reserves) in the Far East, Siberia, the Far North, Central Asia and the Caucasus depend not only on federal budget support, but on the support of the many indigenous peoples who live in the surrounding area as well. Contacts and cooperation with local people are vital to the protection of rare fauna and flora. Yet, judging by a 1987-88 survey of 100 zapovedniki, promoting nature protection among native peoples does not usually incorporate their local traditions or religious views. Unfortunately we are sorry to say that the situation hasn’t improved much since then.

For instance, public awareness campaigns are usually conducted in Russian, which often is not understood by native peoples. Moreover, the Zapovednik staff rarely speaks the native language and is unaware of national traditions. Campaign materials published between 1985 and 1988 by Zapovedniki and National Parks basically did not include booklets or posters in native languages.

Seventy percent of the posters and booklets published by the Ukraine Society of Nature Protection and its regional departments were in Russian, and only 30% in Ukrainian. No booklets or posters were published in Gagauz, Moldavian, Greek, German, Polish or any other languages of minority groups making up the population of Ukraine. By contrast, in the USSR in 1926, the Science Department of Narcomos (the Public Committee of Education) issued several brochures in the Kirgiz and Tatar languages for Zapovedniki in Astrakhan and the Crimea. The Committee of

Nature Protection should be complimented for its initiative in working with national minorities, but unfortunately, this work has not developed far enough.

Propaganda activity with national minorities should follow these principles:

* Ecological education should be conducted in the national language and based on examples close to the lives of the local people, not on facts borrowed from foreign literature which may not be comprehensible to the mentality of native peoples.

* Propaganda should take specific national and natural traits, local traditions, habits, and religious beliefs into account.

Thus, in the preservation efforts of the territory of Sokhodinsky Zapovednik, for example, it should be remembered that indigenous people used to protect the upper reaches of some rivers because of their religious beliefs. Any efforts to protect such regions should incorporate the activities of these people. Other examples include Kronotski Zapovednik, parts of which were sacred to the Kamchatka people, and the natural sites of Malayi Solva Zapovednik, which were traditionally sacred for the Khanty and Mansi peoples.

This approach could also be used to save some species of fauna and flora. For example, the Great Bustard (Otis tarda) was a sacred bird for the Buryat people. Today, however, young Buryat men hunt them as game birds; they have forgotten their ancestors’ traditions, partly out of economic necessity. To promote protection of the Great Bustard in Buryatia, local ecological tales connected with this bird should be reintroduced and popularized. In summertime, some deer-breeders of Komit and the Far North collect Swans’ eggs, even though Swans used to be a sacred bird for most of the people inhabiting this region. In order to protect the Swans, it is necessary to restore respect for this bird among the region’s native peoples.

As a rule, native people inhabit small villages and settlements and are out of the reach of mass media. Because of this, we recommend different channels of communication, such as:

1. Talking with respected people of the community who can spread the information about preserving nature (aksakals, shamans, leaders of the tribes, villages);
2. Using environmental stories, local habits and traditions, and religious beliefs to promote nature protection, and depopularizing traditions that are dangerous for nature;
3. Educating children about the environment;
4. Training native people who know the local traditions and language as nature conservation staff;
5. Publishing eye-catching posters, booklets and brochures that reflect the uniqueness of the nation and making them available at reasonable prices;
6. Establishing contacts with religious leaders and employees and soliciting their assistance;
7. Publishing articles in local newspapers and filming amateur documentaries in native languages.

The staff of Zapovedniki should learn to respect the language and traditions of local people, begin to establish contacts with indigenous peoples, and organize support groups from the people of the surrounding villages.

Vladimir Boreiko is Chairman of the board in the Kiev Center for Environment and Culture.

Know your Metrics?

one foot = 0.301 meters (m)
one mile = 1.61 kilometer (km.)
one acre = 0.405 hectare (ha.)
one square mile = 2.59 square kilometer (km2) = 640 acres

Wordly Wise

Zapovednik (zap-o-VYED-nee) = Nature Reserve; plural: Zapovedniki (zap-o-VYED-nee-kee) = areas that protect representative landscapes or unique landscape features, and have served scientific, conservation and educational purposes. Human activity is highly restricted in these territories.

National Park = areas protecting Russia’s cultural and natural heritage, where limited use for recreation and education is permitted.

Zakaznik (za-KAZ-nee) = Nature Preserve = a protected area that restricts certain types of human activities to protect unique or valuable natural objects on a temporary or permanent basis. Unlike Zapovedniki, they have no permanent staff.

Nature Monuments = similar to a Zakaznik, but tend to be smaller in area.
LIVING ARCTIC

Preserving the Arctic Together

From the Editors: We are continuing to inform you about international efforts and cooperative measures for Arctic nature protection. Earlier, in the second issue of Russian Conservation News, we told you about the development of the Arctic Environmental Protection Strategy among Arctic countries and the implementation of this strategy, which is called the Rovaniemi process. Several working groups created in the framework of the Rovaniemi process are moving forward in various directions: evaluating pollution and developing monitoring systems, protecting the Arctic marine environment, composing emergency prevention and response plans, and expanding efforts to conserve Arctic flora and fauna. And still more will be accomplished, thanks to another international initiative.

The International Arctic Scientific Committee (IASC), created in 1990, unites the scientific communities of Great Britain, Germany, Denmark, Iceland, Canada, Netherlands, Norway, Poland, Russia, the USA, Finland, France, Switzerland, Sweden and Japan. The Committee's activities embrace a wide spectrum of problems in the Arctic region: the effect of ultraviolet radiation on ecosystems and humans; global climate changes and anthropogenic impact; terrestrial ecosystems; the interaction of terrestrial and marine systems; and the sustainable exploitation of Arctic resources. The program International Science Initiative in the Russian Arctic (ISIRA) was established in 1993, demonstrating the growing concern of the international community for these problems and their effects on the Russian Arctic. The country's economic crisis is creating significant obstacles for Russian scientists and institutions in carrying out further Arctic studies, and it is preventing the use of the great scientific potential already available for solving many Arctic problems. Russia managed previously to develop an excellent network of field stations and prepare qualified experts for extensive research. ISIRA — the working group in the framework of IASC — was created specifically to help Russian Arctic Science and promote ecologically acceptable development of the Arctic region. Currently, work on the following projects is underway: study of the degradation and restoration of Arctic terrestrial ecosystems, and land/ocean interaction in the shelf and littoral zones.

One of ISIRA's main tasks is making all the information collected by Russian Arctic explorers available for the international scientific community.

For more information on the activities of IASC and ISIRA, contact:

Mr. Odd R. Rogne, IASC Secretariat
P.O.Box 5072, Majorstua 0301 Oslo, Norway, fax: (47)-2295-9601;
e-mail: <iasc@npolar.no>

Success on Spitzbergen!

by Irina Pokrovskaya and
Olga Voloshina

Dear friends and colleagues! Nearly a year has passed since we turned to you with a request to help us preserve the unique natural environment of the Spitzbergen Archipelago (See RCN No.3).

At that time, the unique Arctic ecosystems of Spitzbergen were threatened by the proposed construction of a highway for use by coal mining companies. Ecologists of many countries united to conduct a large protest campaign against the environmentally hazardous and unjustified project. Our Norwegian colleagues asked the international community, including Russia, to write letters to Norway's Prime Minister Gro Harlem Bruntland in defense of Spitzbergen's nature, our common natural heritage.

Today we congratulate you on your successful efforts! More than 1400 individuals and organizations (including some from CIS countries) joined this effort, and the construction of the highway has been halted! In an official response from the Norwegian government, signed by the Prime Minister, to the representatives of World Wide Fund for Nature (WWF), it is stated that "the construction of the highway is halted for many years to come." This is a great achievement for the conservation community, and we thank all who participated.

However, this victory doesn't mean that the region is safe from other, similar development projects. Other development projects and roadways such as one near the Russian city of Barentsburg, for example, are not far off in the future. So we must not relax too soon! We will monitor the situation and inform you as events unfold.

Irina Pokrovskaya and Olga Voloshina are editors of the Living Arctic newsletter. They can be contacted through Biodiversity Conservation Center.
Protecting the Arctic Environment
(data from the Habitat Conservation Report #1, 1994, updated)

The Russian Arctic extends from 20 degrees E to 170 degrees W, longitude, covering an area of 634,978,000 hectares. The protected areas network began forming here in 1930, when the first Zapovednik, Laplandski, was created. At present ten Zapovedniki have already been established in the Russian Arctic, and, together with one Zakaznik also representing the World Conservation Union (IUCN)'s category I of strict nature reserves, they cover 2.3 % of the territory of the Russian Arctic.

Besides protected areas with a strict regime, other forms of nature conservation are also present. Fifteen Zakazniki adding up to a total area 7,106,800 ha, Novosibirsk Island as a buffer zone for Ust-Lenski Zapovednik (3,840,000 ha), and Bering Island as a Natural Park (3,053,300 ha) prevent destructive economic activities over an area of 14,000,100 ha. In all, protected areas compose 4.5% of the total area of the Russian Arctic (compared to 56.1% in the U.S.A.). According to federal plan, seven more Zapovedniki and three National Parks are supposed to be established by the year of 2005.

Creation of the protected areas in the Russian Arctic is in many ways supported by the World Wide Fund for Nature (WWF). Their first project in Russia was assisting in establishing Bolshoi Arkticheski Zapovednik. Financial support is being provided for other Zapovedniki both existing and under creation.

LEGISLATION

Wildlife Trade in the Central Asian States of the Former Soviet Union

by Dr. Igor Chestin

In 1995 TRAFFIC Europe-Russia (Trade Records Analysis of Flora and Fauna in Commerce, a joint IUCN and WWF program) collaborated with regional NGOs and specialists from Zapovednik (strict nature reserves) to carry out research on the wildlife trade in the Central Asian countries of the former Soviet Union. In each country TRAFFIC researchers interviewed governmental officials responsible for wildlife use and protection, employees of state-protected natural areas and members of various conservation NGOs.

None of the countries in the region is a member to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), although Kazakhstan has recently recognized the convention, a step which can be interpreted as the government's willingness to follow the obligations CITES places on the member states. The Russian CITES Management Authority (Department of Biological Resources of the Ministry for the Environmental Protection of the Russian Federation) is responsible for issuing permits for wildlife and plant and animal parts originating in Central Asia, according to a 1992 decision by the CITES Secretariat. All the Central Asian countries appeared to have state agencies responsible for setting hunting and harvest quotas, issuing permits for harvest and enforcing field control of wildlife use. Similarly, nature protective legislation, usually fairly strict, was also found in all countries.

Trophy hunting, poaching, trade in animal parts, capturing live animals and trade in rare and endangered plants were addressed wherever possible during the survey. Problems with trophy hunting by foreigners were probably the best known, both in the CIS and in the West. Several countries have imposed a ban on the import of trophies originating in Central Asia. At the same time, this survey showed that trophy hunting by foreigners was much better controlled than any other type of wildlife harvest. The most attractive species for hunters were various subspecies of mountain-dwelling sheep (Ovis ammon). In fact, there is still no agreement on the systematization of the species of sheep occurring in Central Asia. Most subspecies were distinguished by the ridges they reside on; nearly every separate population living on a ridge was labeled a subspecies by some zoologist. It is therefore quite hard to judge whether those divisions are valid; consequently, assessing the conservation status of subspecies must be done separately.
Probably not all the hunted trophies in Kazakhstan were supplied with CITES permits. The quota for mountain sheep in 1992 was 19 animals, in 1993 — 13, and in 1994 — 14. The Russian CITES Management Authority had records of 7 mountain sheep approved for export from Kazakhstan in the 1993-94 season, all Kazakh Argali (O. ammon collinum), and 19 in the 1994-95 season, 18 Kazakh Argali and one Bukhar Argali (O. a. bucharensis), an endangered species.

In Kyrgyzstan as well the number of permits issued by the Russian CITES Management Authority was lower than the quotas set by the government. Eight permits were issued for the 1993-94 season for Marco Polo Sheep (O. a. polii), and 12 for the 1994-95 season.

More Marco Polo Sheep were hunted in Tadikistan than anywhere else: the Russian CITES Management Authority issued 24 permits for the 1993-94 season and 18 permits for the 1994-95 season. Tadikistan was the only country where foreigners were allowed to shoot Snow Leopards, and that was by the decree of former President R. Nabiyev.

In Turkmenistan hunting of Ustyt Mouflon (O. a. orientalis arcal), Bukhar Argali and Turkmen Mouflon (O. a. orientalis cycloceros) occurred. In 1993-94 CITES permits for 2 Ustyt Mouflon, 2 Turkmen Mouflon and 1 Bukhar Argali, all endangered, were given. Turkmenistan was found to be the only country where hunts were conducted officially in Zapovedniks (strict nature reserves). The Minister of Nature and Environmental Protection permitted, in a well-known decree of 1993, the hunting of all mountain sheep, Markhor (Capra falconeri), Leopard (Panthera pardus) and other endangered species, and he directly ordered the Zapovedniks to host and assist hunters. This was also the only country where officials from the Ministry of Nature Protection denied, when TRAFFIC researchers interviewed them in 1995, that any trophy hunting organized for foreigners had gone on.

Uzbekistan allowed hunting of Severtzov Argali (O. a. severtzovi), but the Russian CITES Management Authority documented only 1 permit issued in 1993 and 3 in 1995; the latter were for Kazakh Argali.

Another attractive species for trophy hunting was Houbara Bustard (Chlamydotis undulata) sought by sheiks from Saudi Arabia and the United Arab Emirates. This hunting was not documented by CITES, even though the species is listed in Appendix I. This was because neither the Central Asian countries nor the Arab countries are parties to CITES, and they therefore do not need any permits for trafficking.

The principal endangered animal species, captured from the wild were Saker and Peregrine Falcons (Falco cherrug and F. peregrinus) and Horsfield's Tortoise (Agrionemys testudinaria hortensi). The capture and trade of Falcons provoked by visitors from Saudi Arabia and the UAE attracted much more public attention, than did capture of other animals. That was especially true for Kazakhstan. Since this trade or granted captures have not been documented and were usually done by the personal orders of presidents or ministers, the scale of uptake is hard to estimate. Experts from Kazakhstan, Turkmenistan and Uzbekistan believe that hundreds of Saker Falcons were captured annually in those countries in 1992-94. Horsfield's Tortoise was traded mainly by Moscow- or Kiev-based companies. In 1993 the Russian CITES Management Authority issued permits for exporting 15,311 tortoises from Kazakhstan and 7,250 from Uzbekistan; in 1994, 23,336 tortoises from Kazakhstan, and by September 1995, 15,314 from Kazakhstan and 4,000 from Uzbekistan.

Species not listed in CITES Appendices were hard to keep track of. Researchers had access only to data on reexport of Central Asian animals from Russia. Song birds were traded in tens of thousands and reptiles by the thousands, by the same Moscow- and Kiev-based companies.

Trade in venom and the related collection of venomous snakes from the wild, which was quite extensive in the early 1990’s, seems to have decreased because of saturation of the market.

Plant collection and trade appeared to be a major problem in Uzbekistan and Tadjikistan. In 1994 the Tashkent-based company Aksuholding initiated a massive procurement of the Turkistan Soaproot (Allochroa gypsofiloides) used in traditional Asian cuisine and medicine. Botanists from southern Uzbekistan reported that plantations had been literally destroyed and would require 10 to 15 years for regeneration.

One of the major problems in wildlife management in all the post-Soviet

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The Houbara bustard (Clamymotis undulata). Reprinted from the Red Data Book.
Central Asian states seems related not to "subsistence" poaching, as some may have believed, but rather to the activities of the governments and governmental agencies responsible for wildlife control. In all countries endangered species that earlier had been strictly protected by Soviet legislation have begun being used commercially. In most cases this was supported or at least agreed to by governmental scientific institutions. In Kazakhstan the State Committee for Nature Protection and the Institute of Zoology of the Kazakh Academy of Sciences have gone further than others, by starting a research program on the limited commercial use of endangered species. The basic idea was that, since there are no funds for conservation in the state budget, let endangered species earn money for protection themselves, by becoming the subjects of scientific research that would be funded by foreigners wanting to go trophy hunting.

In this situation attempts by the world conservation community to force the national governments of the Central Asian states to join CITES may be premature. If countries become parties to CITES, it is very likely that the same governmental agencies that are trading in endangered species now will then be entitled to issue CITES permits. Similarly, the same scientific institutions which agree to harvesting endangered wildlife will become CITES Scientific Authorities. The first steps in improving wildlife control could instead include establishing some commissions with seats reserved for NGO representatives. Also, all trade going on now should be well-documented, and the figures should be open to the public. This is currently not the case in any of the Central Asian countries, and it may be a worthy goal for the world conservation community.

**Dr. Igor Chestin** was leader of the 1995 TRAFFIC project in Central Asia, and he's also a Researcher in the Division of Vertebrate Zoology and General Ecology within the Biology Department at Moscow State University.

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**National Press Encourages Readers to Violate Conservation Laws**

by Ludmila Volkova

"Komsomolskaya Pravda," one of the largest newspapers in Russia, published an article on January 16, 1996 about a butterfly collector who sells butterflies "in order to pay for trips to the Caucasus, Altai, Central Asia and Siberia." The paper tells readers that butterfly collecting can bring enterprising individuals substantial income. The article reveals that in the foreign market one of the rarest varieties of Swallowtail draws impressive prices.

In response to the question whether collection of butterflies listed in the Red Data Book is considered poaching, the article writer goes so far as to say that while disturbing butterfly habitat should be prohibited, killing butterflies in their last refuges should be permissible. Such a position should not even be broached.

As evident from the text of the article, butterflies are being collected in large numbers. It is well-known that local butterfly populations typically inhabit small-sized tracts of land. Thus, hunting the butterfly to the point of extinction is an all too possible scenario, especially since creation of refuges and sanctuaries with a protection staff is more difficult than ever in the countries of the former Soviet Union.

The article was more than 120 lines long and illustrated with butterfly silhouettes made of Russian and American banknotes. It practically encourages the creation of a demand for collecting butterflies, while discrediting conservation laws. The article appeared not in the traditional Window on Nature column, nor in the entertainment section, but in the Business Tuesday appendix. Similar articles had already appeared in Komsomolskaya Pravda and Moscow News.

As TRAFFIC-Russia explained, the newspaper cannot be prosecuted for publishing such information, since that does not constitute a direct violation of laws. The professional level of these publications, methodically creating a positive image of this dubious business and in fact attempting to create a market, provides substantial reason to believe that there is a well-thought-out campaign to legalize the trade in butterflies behind these articles.

Unfortunately, the legislative basis for fighting the illegal collection and trade of insects is currently very weak. In our work completed in the federal programs on environmental security (the project leader of which is E.M. Antonova, of the Moscow State University Zoological Museum), we issued several recommendations:

* establish fines for harm caused as a result of the destruction of habitat for rare and threatened insect species;
* levy fines for harm caused by the collection of protected insect species, at ten times the price paid on the international market;
* strengthen border control over transport of collections via roads and airways.

Considering that in the USA there exist auctions where insects are sold, we ask all interested parties to inform us about occasions when suspicious insect collections from Russia and other countries of the former USSR appear.

**Ludmila Volkova** is Executive Director of the Laboratory of Applied Ecology.

Swallowtails (Sericinus montela and Auroplaneura alcinaus). Reprinted from the Red Data Book.
MANAGEMENT

St. Petersburg Botanical Garden: vital link in Conservation in Northwest Russia

By Stanislav Bogdanski

The St. Petersburg Botanical Garden is one of the most famous in the world, thanks to its unique collections. It was founded as an Apothecary’s garden by Peter the Great in 1714, for the purpose of cultivating medicinal herbs as well as rare foreign plants. Today about 12,000 original specimens of trees, bushes, flowers and decorative grassy plants belonging to more than 8,000 species are gathered in the Botanical Garden’s greenhouses and arboretum (18 hectares in all).

The Botanical Institute of the Academy of Sciences was organized on the basis of the Botanical Garden, which became its division of live plants. Among the various directions of scholarly research carried on here, the work connected with conservation and, in particular, the preservation of rare species of the Russian plant world, are an important part. We’ll enumerate here the basic ways that work is being realized.

Institute employees participate directly in composing the Red Data Book of Rare and Endangered Species. In recent years such editions as The Rare and Endangered Species of Flora in the USSR Needing Protection, The Red Data Book of Russia and The Red Data Book of the Baltic Countries have appeared. This year The Red Data Book of Fennoscandia (which encompasses Finland, Karelia, the Murmansk Region, and the northern part of the Leningrad Region) will be published. Moreover, regional notes on protected species are continually being compiled.

The Botanical Institute has played a very significant role in creating and inspecting the network of specially protected natural territories (strict nature reserves, special purpose nature preserves, nature monuments). Nizhnesvirskii and Pinezhskii Zapovedniki were organized in recent years with the participation of Institute employees. They have also been conducting scientific research for many years in Khaperski, Pechoro-Ilychskii, Centralno-Lesnoy [forest], Centralno-Chernozemni [black soil] and Laplandskii Zapovedniki and on Wrangel Island. A new Zapovednik called Finnish Gulf, East is being formed partly through their efforts. Also thanks to their efforts, monographs and lists of flora resulting from complex projects in the protected territories are published. Many representatives of rare plant species are transplanted in the Botanical Garden’s arboretum — species such as the Gingko tree, which is rare in northern latitudes, and a few southern subspecies of Snowdrops (Galanthus nivalis). Specialists from the Botanical Garden conduct experiments of introduction and selection with trees, shrubs and flowers at bases established in the Skreblovo and Otradnoe villages, Leningrad Region.

The plant world of the Leningrad Region — which has undergone significant industrialization in recent decades — is the subject of intent scrutiny by Botanical Institute employees. Intensive exploitation of natural resources has led to the tendency for many representatives of wild plant life to disappear, since the natural surroundings of their habitats have changed so drastically. Botanists go on field trips, make descriptions of plants, collect specimens and determine which species are endangered. In the most interesting places of habitation of rare plants, protected territories with a limited regime of use are organized. This is of course preceded by coordination with and approval by regional and region organs of power. The most complicated feature in such situations is the relationship with the organizations that are using the given pieces of land. Today a network of protected territories which includes one Zapovednik (strict nature reserve), 20 Zakazniki (special purpose nature preserves), and 23 natural monuments has been created. Descriptions of vegetation and inventory of flora within this network are carried out and the data are entered into a computer. Two Zakazniki and four natural monuments are among the protected territories established over the last few years by employees of the Botanical Institute.

Yuntolovski Zakaznik is located within city limits of Lakhtinski Razliv and preserves the remains of ancient Baltic plant life. Turf two meters deep has preserved information about the evolution of the plant world in the Baltic region. Today one can find here such rare plant specimens as Sweet Willow (Myrica gale), Caulinia tenissima along with Black Alder (Alnus glutinosa). Furthermore, Lakhtinski Razliv has been a stopping-place for migratory birds from time immortal.

Zelenetskii Mkhi Zakaznik is located on the border between three regions of the Leningrad Region. Here lies the southern limit of the spread of several northern species of plants, for example, peat moss (Sphagnum Linbergii), Cranberries in extraordinary quantity and the carnivorous Round-Leaved Sundew (Drosera rotundifolia) are found; a rare bird — the White-tailed Eagle (Haliaeetus albicilla) - nests here.

Komarovski Forest Natural Monument envelops a resort zone of St. Petersburg and is characterized by typical seaside landscape: dunes with Sand Sedge
Fire in the Far East: A Tool in Natural Resource Management, or Weapon of Destruction?

by Valentina V. Sukhomlinova and Nikolai R. Sukhomlinov

From the Editors: The use of fire in natural resource management has remained highly controversial in recent decades, both in Russia and abroad. In the United States it's currently recognized that fire can be highly beneficial, maintaining the natural processes of regeneration in many different ecosystems. This article, however, calls our attention to the fact that human-induced fires, when uncontrolled, can be greatly hazardous to both nature and society. The authors discuss fire management as practiced today in the Russian Far East, a tool which is far from benign and reflects the confusing nature of natural resource management generally in the post-Soviet environment. RCN welcomes comments on this issue from both our international readers and domestic experts.

In this article we would like to express our concern about the growing number of proponents of the use of fire as a "beneficial" management tool, a dogma that was born within the classical school of ecological thought. While it is certain that fire has been an important natural factor in many ecosystems throughout time, the indiscriminate acceptance of fire for management of large, late successional ecosystems has led to veritable "pyromania" among local decision-makers in many places.

One such place is the southern part of the Russian Far East. For various natural and social reasons, human-induced fire is becoming increasingly widespread, on a scale bordering upon ecological calamity. The Arkarinsky district in the Amur Region can serve as an example. According to polls we conducted there, the use of fire as a principal tool occurs in the following types of management activities:
* In agriculture, fire is prescribed to burn off dry grasses in fields and to clear forest vegetation, shrubs, and wild forbs when plowing virgin land;
* In livestock husbandry, rangeland is burned annually to accelerate grass growth, and hay meadows are burned to suppress shrubs and tree shoots;
* Fire is encouraged by gatherers of edible fern sprouts, as ferns vigorously regenerate following fires;
* In beekeeping, fire is used to stimulate growth of herbaceous plants rich in nectar; however, fires kill another important nectar-producer, the linden tree (Tilia sp.);
* Fishermen use fire to clear low vegetation along riverbanks, and hunters to increase the primary productivity of certain habitats;
* In railroad maintenance fires are used to suppress undesirable growth of plants along the tracks, but frequently they spill over onto adjacent lands.

In Russia fire is used for many other reasons unrelated to landscape management. The general public commonly sets fires to get rid of midges and mites; a number of groups use fire to settle scores with rival organizations,

Large-scale use of fire in natural ecosystems has been practiced by different peoples throughout history, leading to dramatic transformations of the ecosystems managed in this way. Many ecosystems of the "open" type — steppes, chaparrals, savannas, prairies, pampas and the so-called "wet prairies" of the Russian Far East — appeared as a result of fire. Such sweeping environmental changes also produced radical changes in human society. In fact, there are indications that all too many civilizations have perished because of drastic changes in their environment. The authors have been studying the social effects and suggest that human-induced fire has been a major factor in biosphere evolution, eventually producing results far from beneficial to society.

Sadly, the issue of introduced burning has received little attention from scientists and practitioners in Russia. Attempts to counteract "prescribed" burning occur only in the act of firefighting; there has been little effort to examine the social and economic reasons for this widespread practice.

Stanislav Bogdanski is a free-lance journalist who works for EcoChronicle in St.-Petersburg.
individuals, and protected areas, as well. Teenagers and children frequently set fires simply for entertainment. Fires are also commonly used to combat other fires. With the public perception that fire is a cheap and useful remedy for many problems, we have arrived at a situation where everyone uses fire as he or she pleases.

Consider the history of fires in Khinganski Zapovednik, for example. A major portion of the territory has burned from one to seven times over the last 15 years (!), and these were mostly human-induced fires. Many areas that did not burn during that period show clear traces of previous fire. And so much for the lands outside the reserve, where there is no fire control whatsoever! Today the situation is even further aggravated, since burning on agricultural lands, which was prohibited in Soviet times is now permitted and even encouraged by the regional authorities.

**Origin of prescribed burning in the Far East**

Let us now try to discover the historical roots of the Far Eastern “pyromaniac stereotype.” Two historical land uses seem most responsible in this region: hunting and agriculture. The territory was settled long ago, in the Paleolithic era (45-20 thousand years ago). By Paleolithic standards, the population density was considerably high. Fire was widely used by Paleolithic hunters to chase game out of the woods, marking the first attempts at deforestation in the area.

Subsequent human history had well-pronounced cycles: agricultural civilizations replaced one another every two to three hundred years. Because sustainable land use traditions were not passed down from one cultural group to another, each new one began its exploration of the region with the familiar slash-and-burn approach. Russian colonization of the Far East began another period characterized by reconnaissance expeditions and frequent fighting between Russians and the Chinese. The Russians finally drove the Manchurian farmers out, effectively ending any agricultural activities in the area for over 200 years.

Subsequently, Russian settlers could learn nothing about sustainable land use traditions from the local populations. These pioneers settled large tracts of land that had to be constantly cleared of woody vegetation. The unfamiliar monsoon climate, with its wet periods in August and September instead of the spring flooding pattern familiar to Russians, coupled with a low degree of technical advancement demanded an inexpensive and effective tool for combating the native vegetation. Such a tool was found, and it was, of course, fire.

The abundance of land continued to encourage the expansion of cultivated areas, a process that is still going on today. Most recently, because of rapid privatization, more people have obtained access to land. The current transfer of public forested lands to private hands for building summer houses and planting vegetable gardens is disturbing. Because the land is distributed free of charge, people are excitedly clamoring to get a parcel while it is still available. The slow creep of summer houses into the wilderness continues to destroy large forested areas and further enhances the ubiquitous “pyromaniacal” behavior.

We have to conclude, therefore, that the contemporary use of fire in the Far East is nothing else than a current adaptation of the age-old slash-and-burn technique. The problem is that, unlike his Paleolithic predecessor, the contemporary farmer has no other place to go once his own plot is depleted of resources. Such an archaic form of land use may cause disastrous consequences, given the already high population density and widespread environmental degradation.

**Current Attitudes**

The results of the authors’ public polls in the Far East reveal an interesting fact: the majority of the population actually opposes the broad application of fire (please refer to the inset).

It should be noted that among fire advocates, many suggest that fires have to be rigidly and properly controlled whenever used. We failed to discover any difference in attitudes towards fires between the old-time residents and newcomers.

**Attitudes toward the use of fires among the local population in Arkharinski district of Amur region:**

1. General attitude toward use of fires in land management:
   - 76% - negative (64% completely against)
   - 14% - positive

2. Reasons for the existing practice of extensive fire use:
   - 59% - the land has no actual owner
   - 38% - it’s a traditional practice
   - 12% - there are no other ways of managing vast lands with low population

3. What policies toward fires are necessary?
   - 59% - ban fires (20% completely, 39% to make fires unprofitable)
   - 14% - maintain the status quo
   - 27% - more thorough investigation on the matter is required

In our paper we have attempted to show how fire mismanagement originated and matured in one region of our planet, the Russian Far East. There is every indication that this region is by no means unique in that respect. We see the real problem not in this particular case study, but in the common human understimation of fire as a global phenomenon, and our current inability to apply it with a sound ecological justification. While we need to pay more attention to the issue of fire use, it is regrettable that most Eurasian scientists and decision-makers remain uninterested in finding the correct answers.

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NGOs

Far East: the Wildlife Foundation in Action

By Alexander Kulikov

The Wildlife Foundation was begun by a small group of Russian ecologists and environmentalists and received official status as a non-governmental organization in the Khabarovsky Region in February, 1993. It has become an international figure in the arena of nature protection and is active on several fronts in biodiversity conservation — political, educational and legislative. The Foundation believes that effective steps towards conservation must come from the grassroots efforts of citizens and environmental groups. More than 100 members, including six Far Eastern Zapovedniki (strict nature reserves), three scientific institutes, several indigenous people’s associations and a number of foreign environmental NGOs currently belong to the Wildlife Foundation, which is funded exclusively through grants.

The Foundation’s main objective is preserving the unique biodiversity of the Russian Far East, including such rare and endangered species as the Siberian Tiger, the Far Eastern Leopard, and Japanese and Hooded Cranes. The habitats of these species have been drastically reduced in just the past two years. Therefore, the Foundation has worked persistently to develop a network of new protected territories, to offset the loss of habitat due to logging, mining and expanding development in the Far East.

In two years’ time the Wildlife Foundation has already accomplished a great deal. In March 1993, the Foundation hosted an international symposium, “The Amur Tiger: Problems of Population Conservation,” which was the first step in a long campaign to coordinate local and international efforts for tiger protection. The Foundation has developed a tiger action plan which includes creating a new protected area conserving tiger habitat in the southern part of the Khabarovsky region.

Foundation members have also taken a census of the tiger population and took part in an anti-poaching campaign initiated by Tiger Trust, World Wide Fund for Nature and the Russian Ministry of Nature Protection.

To encourage environmental education in the Russian Far East, the Foundation has joined a campaign managed by Zov Taigi (a grassroots organization from the Primorski Region) to develop school curricula and teacher-training programs. The Foundation also publicizes scientific analyses of the population levels of rare species, to keep ordinary citizens informed.

The development of Geographical Information System (GIS) — a project facilitated by international partners — will increase the ability of both scientists and the general public to understand changes in the local landscape. The Wildlife Foundation has already used its budding GIS system effectively to demonstrate the scientific reasons for protecting biodiversity and forests in the Khabarovsky Region, and will continue using it to provide necessary, comprehensive information about biodiversity, forests, and protected territories to government officials and the general public.

Members work closely with the regional government, augmenting its efforts to create new protected territories. In 1995 the Foundation received official acknowledgement from the Khabarovsky Regional Government that two new Zakazniki (special purpose nature preserves) are needed within the Khor River watershed. The Wildlife Foundation will work with the regional government to ensure that these preserves are actually created, and that a strict regime of protection in those territories is enforced.

Foundation members had already been working with local populations to conserve biodiversity and encourage sustainable development in the Khor River watershed in 1994 and 1995. For example, they developed a system of specially protected territories in the Lazo District, promoted the development and marketing of non-timber forest products such as medicinal herbs, berries and ferns, and helped analyze and develop sustainable methods of natural resource use for the indigenous Ugde community of Django.

In early November 1995, the Governor of the Khabarovsky Region organized a working group of representatives from the leading nature protection agencies to develop a system of protected territories that will preserve the region’s biodiversity. The Wildlife Foundation was asked to compile a list of priorities for those territories and a corresponding database. The Foundation has the chance to work very closely with a variety of government agencies and influence their decisions, especially since the regional Governor has ordered all agencies to facilitate the efforts of this working group.
The Wildlife Foundation works with environmental lawyers in Khabarovsk, providing legal support to local NGOs and resource agencies. The Foundation compiles and analyzes regional laws affecting forests, wildlife and biodiversity; prepares commentaries and recommendations for strengthening those laws and regional or local resource plans, including protected area planning documents; disseminates its analyses and recommendations as widely as possible; provides legal support for the protected area working group; and reviews the environmental assessments of projects affecting forestry or biodiversity.

Sharing information is crucial for the success of the environmental movement in the Russian Far East. With initial support from the Asia Foundation and ISAR, the Wildlife Foundation created an Ecological Information Agency to disseminate information about the environment and natural resource use to other NGOs, government officials, educational organizations, children's environmental centers and libraries. The Ecological Information Agency has also created a database of Russian Far East non-governmental conservation organizations. Further, the Wildlife Foundation has helped other NGOs with fundraising through a workshop on writing grant proposals.

The Wildlife Foundation invites all interested individuals and institutions to become members. Membership is free; the Wildlife Foundation strives only to combine the collective intellectual and creative strengths of its members to save the priceless wildlife of the Russian Far East.

Please join our campaign!

Alexander Kutikov is Chairman of the Wildlife Foundation.

ENDANGERED SPECIES

On the Population Status of Markhor in the Western Kugitang Area of Turkmenistan

by Dr. Pavel Veinberg, Dr. Aleksandr Fedosenko and Dr. Raul Valdes

The northern border of the Markhor (Capra falconeri Hepneri zalkin) area is located in former Soviet Central Asia, where Kugitang Mountain (37 degrees 30' N, 66 degrees 30' E) is considered the eastern reach of the species' distribution in the region. This limestone massif, reaching 3,139 meters in height, stretches 50 km north to south, nearly to the Amu Darya river, and forms a natural border between Turkmenistan and Uzbekistan. Its slanting western slopes are cut with deep ravines. Semidesert defines the landscape of the foothills, followed by dunetose steppe with almond (Amygdalus bucharica) at 800 meters above sea level, which are in turn succeeded by juniper open woodland (Juniperus seravschanica) at 1,600 to 1,800 meters.

Data on the numbers of Markhor in Kugitang are scarce, and much of it is outdated. In the 1970's and early 1980's, estimates ranged from 180 to 200 individuals. According to the Red Data Book of Rare and Endangered Species, the population status underwent significant deterioration in that decade.

New studies on the status of Markhor and Bukhara sheep (Ovis vignei boharenas) populations were conducted only in April 1995 on the southern end of the Kugitang's western slope. The 8000-ha census area covered the territory of the Kugitang Zapovednik (strict nature reserve), where the regime includes prohibition of hunting, grazing and trespassing. Further downhill, the Zapovednik borders on Zakazniki (special purpose nature preserves) where grazing is permitted. Approximately two-thirds of the total Markhor population was counted in this region, and the number came to 213 animals. With complementary data collected by rangers, it's possible to say that at least 300 individuals inhabit the region, at a population density of 40 individuals per 1000 ha. Even by conservative estimates, Turkmenistan can boast of 400 Markhors.

During the census period, male Markhors inhabited the upper zone of light forests, whereas females with their young tended to dwell in the deep ravines at 1300 to 1800 m. The average size of groups of mature males was 5.7 individuals (the number of groups was 11), and that of females — 6.0 (37 groups), although when coming out on the slopes, animals could form groups of forty-four.

The male/female ratio determined by the census, 0.94 males to 1 female, is typical for protected or slightly disturbed populations. The fact that each mature - female corresponded to 0.75 kids less than a year old and 0.40 one-year-olds indirectly confirms the theory that twins occur quite regularly in Markhor herds.

Markhor (Capra falconeri).
Drawing by V.Smirin.

Spring 1996, #7
Considering the small area of the massif, the Markhor population possesses rather high density and numbers, an intensive breeding capacity and good indicators of sex and age structures. With such potential for reproduction, this population, given appropriate protection, could double in five years. However, the Zapovednik (of the total area 28,000 ha) protects only the males' natural habitat, the juniper zone. Beyond the boundaries of the Zapovednik, this species has survived mainly due to its habitation in deep ravines inaccessible to cattle and people.

These studies were conducted with the support of Safari Outfitters and Safari Club (USA). The authors express their gratitude to the Turkmenistan Ministry of Nature Protection and the administration of the Kugtiang Zapovednik.

**Dr. Pavel Veinberg** is the Leading Researcher in Severo-Osetinski Zapovednik;  
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Dr. Raoul Valdes is a professor at New Mexico State University in the Department of Fishery and Wildlife Services.

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**Great Knot: Discovering a Russian Recluse**

*by Maxim N. Dementyev and Pavel S. Tomkovich*

From the Editors: Before Pavel Tomkovich, one of the authors of this article, began his research, the Great Knot was considered one of the most mysterious birds in the fauna of Russia. Literally nothing at all was known about it. The first nest of this species was found on the territory of Northeast Siberia at the beginning of the century, but in some complicated manner it wound up in Sweden and was forgotten for quite some time. Only in the 1960's did the Russian ornithologist Aleksandr Kishchinski succeed in rediscovering this species in its nesting stage. The numbers of this species seemed so small that it was included in the Red Data Book of Rare and Endangered Species of the Russian Federation. But it unexpectedly turned out that the species spends the winter in Australia in great numbers (up to 300 thousand).

Where do these birds nest in the summer? Why do Russian ornithologists know nothing about this bird? This project of searching for nesting places and studying their nesting biology was undertaken in order to resolve these contradictions.

It can be said that we have before us a classic example of how necessary purely zoological research projects are for correctly arranging priorities in conservation of individual species.
migration, but those observations said nothing about the birds’ lives in their nesting period.

There were more than enough reasons for conducting detailed research in Russia. An inhabitant of mountain tundras—possibly the primordial place of habitation for Great Knots—that has remained in a nesting place that has only slightly changed in many centuries, might even preserve elements of archaic behavior. Getting any information at all about the unknown sides of the birds’ lives would be very important and interesting.

From 1993 to 1995 three expeditions to the district of the upper reaches of the Anadyr River (Shuchuchi Ridge) were organized (in the field-trip season) under the leadership of P.S. Tomkovich. The place for carrying out the experiments had been recommended by Magadan zoologists who had already been working there for many years. The Magadan citizens themselves turned out to be cordial and hospitable hosts, without whose help realizing the plan would have met with a far greater number of difficulties.

The average level of plateaus with mountain tundra where Great Knots nest is 600 to 700 meters above sea level. At the top, in the mountains, one finds (among tree species) only isolated groups of scrawny Larch and Mountain Pine, though lower down, in the river valleys, are forest communities where Larches, a willow specific to Northeast Asian tundras, Mountain Pine and Dwarf Alders predominate. In the tundra the lichen and moss cover alternates frequently with rocky deposits devoid of all vegetation. Significant drops in temperature are characteristic of such high-mountain locales and are noticeably reflected in the dynamics of the resident birds’ activity. It’s worth adding, however, that even with all the unpredictability of the weather and the severity of nature in the mountains, the beauty of the high tundras, the crystal-clear purity of the air and the indescribable taste of the water from the snow patches will win over any researcher.

Thanks to our making colorful, individual marks on many dozens of Great Knots in all three summer seasons of the study, it became possible to trace a multitude of interesting features and traits of the biology of this species. These include peculiarities of nesting behavior, the character of local movements, partners’ turn-taking frequency while hatching their eggs, and territorial inter-relationships. The supposition that the females take no part in raising the fledglings has been confirmed; they instead migrate from the nesting places immediately after the eggs have hatched.

Adolescent fledglings who are already able to fly often gather together in bands of two or three broods, later dividing unerringly into their initial groups. Only thanks to the markings were their unusual forms of behavior in choosing a partner noticed, as were cases of “adoption” of other birds’ nestlings by Great Knots who had lost their own. It turns out that the small flocks of Great Knots migrating to the south don’t necessarily consist of broods with their own parents. During local migrations these groups form out of fledglings who are already ready to fly and of adult birds often from different fitters.

The structure and variability of display flights and songs and the variety of signals at moments of danger or feeding were elucidated completely enough. However, the strong nesting conservatism of the species was discovered unexpectedly—about 90 percent of the earlier ringed and marked birds were found on their own nearly unchanged nesting fields. Data on the birds’ diet and the dynamics of their activity turned out to be very interesting. It was explained that bilberries, crowberries (Empetrum nigrum) and Arcto-Copy alpina, found in abundance in some places in the mountains, make up a significant part of the rations for adolescent Great Knots and for adult birds. Despite the difficulty in finding nests, the discovery in 1995 of all the nesting pairs’ clutches of eggs in a field under regular observation was a pleasant surprise. Results on the dynamics of growth right up to the moment of taking flight were obtained. The species turned out to be convenient for observation, insofar as—despite noticeable variations in characters and manners of behavior—almost all of the Great Knots got so used to our presence that we began to feel, in their attitudes towards us, not so much fear as a host’s condescension. This helped us a great deal in noticing the most interesting features that are, more often than not, concealed from observers.

Along with studying the Great Knot, we also observed the lives of other inhabitants of the mountain tundras and floodplain forests of Chukotka. The nesting habits of many interesting species were established for the first time, and interesting information about bird reproduction was gathered. A big surprise was coming across a Great Knot flying through that had been ringed in the wintering grounds in Australia; in turn, we later learned that two of the birds ringed by us in 1995 were found in the wintering grounds in Australia in the fall of that year.

Conducting all this research became possible only thanks to the sponsoring aid of our Australian ornithologist colleagues and the Australian government. Significant scientific material was gathered in those three years of work. However, because of the inaccessibility and breadth of the region where reproduction of this species takes place, much remains unstudied. Defining more precisely the borders of the Great Knot’s contemporary dissemination and the particular traits of its distribution within these boundaries still lies ahead of us, as does determining the appropriateness of conservation measures and the birds’ subjection to the pressure of anthropogenic factors. There is even less information about the dynamics of migration, the ecology of their fodder and their accumulation of fatty reserves in the birds’ points of concentration on the shores of the Okhotsk Sea, from which the birds begin their long journey to their wintering grounds.

Maxim N. Dementyev is a student of biology at Moscow State University, and Pavel S. Tomkovich works as a Senior Researcher in the Moscow State University Zoological Museum, where he is curator of birds.
Environmental Atlas of the Black and Azov Seas

The Sevastopol Department of Geographic Society, along with marine scientific research institutes and universities and field environmentalists, is preparing an Environmental Atlas for publication in Russian, Ukrainian and English sometime this year.

The Atlas includes 300 maps illustrating the ecological situation in the coastal regions of the Black and Azov Seas — its dynamics, pollution sources and agents, the damage done as well as the measures required for environmental restoration. Maps are grouped into the following sections: general information, geological environment, water, atmosphere, radiological data, recreational resources, biological resources, geocological prognosis and supplements.

Each map is 50x35 cm and multi-colored, drawn on a scale of 1:2,500,000; larger-scaled insets are included where necessary. The Department plans to publish 5,000 copies, for wide distribution among all Black Sea countries, regional institutions and authorities, international and national environmental organizations, and scientific research centers. The atlas structure allows the option of advertising ecological and scientific materials, including texts and polychromatic illustrations.

This project is sponsored by the National Agency for Marine Research and Technologies of the Ukrainian Cabinet of Ministers.

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If you’re seeking a useful and noble mission – it’s here!

The Ural region is a wonderful place rich in natural treasures, old traditions and amazing people, but all its treasures are under threat of extinction: poor ecology and perverse economic practices are leading to degradation of all its resources, human included. Yet there are people who care about the future of the region and are eager to oppose these destructive trends. Many of them united in 1989 to form the Uralski Ecological Fund.

Uralski Ecological Fund was established as a public, non-profit organization to bring together scientists who are well-known in the Ural region, public leaders, lawyers, teachers, journalists and businessmen whose professional activities intersect with various spheres of ecology. The Fund defines its mission as assisting in improving the ecology of the Ural region and turning the economy towards sustainable development. The Fund works actively in the field of environmental education, promotes socially important ecological projects, conducts independent environmental impact assessments, participates in legislative activity, and lobbies regional administrations on issues of nature protection and sustainable development. A significant direction of the Fund’s activities is facilitating collaboration and interaction among public associations and non-governmental organizations.

The Fund seeks partners sharing similar ideas and goals and ready to do their best for the restoration of the Ural region’s natural environment and provision of a worthy future for the generations to come.

Projects currently underway:

- Informational environmental center
- Informational newsletter
- School of ecological survival
- Educational program, “Alternative Technologies for Russia”
- Organization of an ecological settlement in the Sverdlovsk region
- City ecology
- Alternative energy sources and energy-saving
- All projects have non-profit, non-commercial status.

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CONSERVATION

Now in English! Chronicles of Nature (Letopis Prirodi) of Zapovedniki of Russia.

This compilation lists research topics for 85 Zapovedniki in Russia. Results of wildlife population studies are summarized in tables, and Latin species names of flora and fauna are also listed. Each entry provides date of establishment, total area, address, phone number of the Zapovednik, plus the names of its Director and Deputy Director (Head of Research Dept.).

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In memory of Dr. Mikhail Zablotski

On May 3 1996 Mikhail Aleksandrovich Zablotski, Doctor of Biology and Honorable Member of the European Bison Group of the World Conservation Union (IUCN), passed away.

He gave nearly 40 years of his life to the noble mission of re-introduction of the European Bison (Zubr) to the territory of the USSR.

Mikhail Zablotski was one of the organizers and leaders of the Central-Siberian Zubr Reserve, located in Prioksko-Terrasny Zapovednik in the Moscow Region. Even after his retirement he continued as scientific leader of the project The Zubr and Its Rehabilitation in the Soviet Union. For Mikhail Aleksandrovich restoring the Zubr was not just work; it was a goal to which he dedicated his life.

Unfortunately, not all of his work has been fully appreciated, and some of his achievements have even lost ground in recent years.

On May 1 a film crew from the Biodiversity Conservation Center were guests of Mikhail Zablotski, aiming to film the story of this wonderful person and the return of the Zubr to Russia.

They agreed to meet again to finish the work on the film... In two days Mikhail Zablotski had died.

A person's physical end does not mean his death, insofar as a person lives on as long as his work survives, and as long as there are memories of him. And Russia will be eternally grateful to Dr. Zablotski for returning the Zubr to Russian soil.

May you be remembered forever, Mikhail Aleksandrovich!