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BIODIVERSITY:

Delivering results in Europe
and the CIS



Griffon Vulture (Gyps fulvus) in Sünt-Hasardag Reserve, Turkmenistan
PHOTO: MICHAEL APPLETON





Biodiversity: Delivering results in Europe and the CIS

September 2012



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Cover picture. Collecting cranberries at a peatland protected area in Belarus. Photo: Sergei Zyuonak.

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Russian stone idols of Komi.
PHOTO: ADRIANA DINU

Foreword

Humans bear the primary responsibility for the present unprecedented biodiversity loss at several levels – genetic, species, and ecosystems. Of all the problems the world faces in managing ‘global goods’, only the loss of biodiversity is irreversible. It is important to realize that curbing biodiversity loss is in our own interest. When species experience significant population declines, the result is the underlying loss in the quantity and quality of natural resources and the associated ecosystem services upon which we depend. For example, the halving of the population of the globally threatened aquatic warbler (*Acrocephalus paludicola*) in Belarus has served as a clear indicator of a similar scale of loss of the peatland ecosystems on which it depends. This in turn has led to a loss of soil fertility and of the agricultural and natural resource-based livelihoods of communities over an area of close to one million hectares.

In Europe and the Commonwealth of Independent States (ECIS), the focus of this publication, there is ample evidence of these continuing losses. The erosion of indigenous crop varieties and landraces in Georgia in the middle of the twentieth century has progressively undermined the resistance of agricultural crops to

pests and harsh winters, with corresponding impact on crop harvests. The loss of wild plant genes in Kazakhstan could render us incapable of economically harvesting climate change-resistant fruit crops in 30 years’ time, a now typical case where food security is threatened by a rapidly changing climate. Humanity is only now starting to scratch the surface of these intricate dependencies between biodiversity and human livelihoods: the unknowns are countless and multifaceted. But we cannot wait until we have a solid understanding of the complex biological systems before we act swiftly to protect their functional health. Biodiversity conservation is the critical insurance for sustained human development.

Climate change is both exacerbating and is being exacerbated by biodiversity loss and ecosystem degradation. Healthy forests and wetlands contain massive carbon reservoirs and are vital for regulating the global climate. While climate change poses an immense challenge today, the continued degradation of these ecosystems threatens to increase greenhouse gas emissions exponentially and intensify the negative effects of climate change in the future. The sustained supply of certain ecosystem services,

for example stream flow regulation in drought prone areas, will be critical in buffering human populations from the adverse impacts of climate change, including coastal flooding, droughts and other hazards. Healthy and diverse natural ecosystems are expected to be more resilient in the face of climate change than degraded ones.

More than ever, our efforts are needed to conserve the natural support systems of the planet. The Global Environment Facility (GEF) is the largest financier of projects to conserve threatened and unique biodiversity worldwide. Since 1991, it has invested over \$3 billion in biodiversity conservation initiatives. GEF resources have benefited a host of threatened species and their habitats, have contributed to the establishment of more effective and better-financed protected area systems, and have helped to adapt damaging economic sector production practices in a manner that helps protect biodiversity. Recognizing the importance of restoring populations of threatened species in the GEF-5 cycle (2010-2014), a refinement was made to the GEF biodiversity strategy to support the expansion of protected area systems in order to better capture the habitat of threatened species. More than 70 percent of all species

owe their threatened status to the loss of habitat, and this directive is intended to improve the status of particularly threatened species. Kyrgyzstan was among the first countries in the ECIS region to benefit from this: a project to conserve snow leopards (*Panthera uncia*) within an expanding protected area system was approved by the GEF in April 2012.

The United Nations Development Programme (UNDP) has been a key partner of the GEF since its launch in 1991. The sustainable management of biodiversity and ecosystem services is a key part of UNDP's mandate. It is critical for achievement of the Millennium Development Goals (MDGs) and to combating poverty. Unlike the rich, the poor are unable to replace ecosystem services with infrastructure (for example, by building flood control infrastructure once natural flood defences provided by forests and wetlands have been lost). Rural communities depend on ecosystem goods and services, in particular for health and nutrition, as a safety net when faced with climate variability and natural disasters, and for crop and livestock development. UNDP addresses biodiversity loss not just because it threatens to increase poverty and undermine development, but also because the causes of biodiversity loss stem from underdevelopment. In particular, the two main causes of biodiversity loss are weak governance systems (policies, institutions and accountabil-

ity) and market failures, whereby the market fails to signal a price for many of the diverse services provided by ecosystems. Support to government authorities to address the governance and market failures that drive biodiversity loss requires the broad experience, ability to leverage, and trusted credibility of a neutral UN agency. The objective of UNDP's biodiversity work is maintaining and enhancing the beneficial services provided by natural ecosystems in order to secure livelihoods, food, water and health security, reduce vulnerability to climate change, store carbon and avoid carbon emissions from inappropriate land use, land use change and forestry practices.

This publication presents some of the outcomes of GEF-funded work managed by UNDP in Europe and the CIS that aims to conserve biodiversity. The GEF and UNDP are proud to support the efforts of governments across Europe and the CIS to better protect their biodiversity endowments. The results achieved so far provide a solid basis for future action, whereby biodiversity conservation will need to be closely integrated with sustainable economic development and efforts to mitigate and adapt to climate change. We hope this publication can inspire others to participate in the global conservation movement, and better secure our own future and economic and social welfare in so doing.



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Loiseleuria procumbens in the Ural Mountains, Komi Republic, Russia.
PHOTO: ADRIANA DINU

Acronyms and abbreviations used in the text

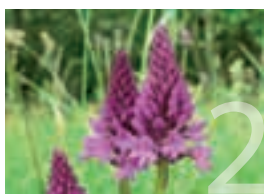
CBD	Convention on Biological Diversity	MDG	Millennium Development Goal
CIS	Commonwealth of Independent States	METT	Management Effectiveness Tracking Tool
EC	European Commission	MMNP	Maramureş National Nature Park
ECIS	Europe and the Commonwealth of Independent States	NFA	National Forest Administration (Romania)
EU	European Union	NGO	Non-governmental organization
FAO	Food and Agricultural Organization of the United Nations	NVBR	North Vidzeme Biosphere Reserve
FSC	Forest Stewardship Council	PA	Protected area
GBSP	Green Business Support Programme	SGP	Small Grants Programme
GEF	Global Environment Facility	SMESF	Small and Medium Enterprise Support Fund
GIS	Geographical information system	UNDP	United Nations Development Programme
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Technical Cooperation)	UNEP	United Nations Environment Programme
ha	hectare(s)	UNESCO	United Nations Educational, Scientific, and Cultural Organization
IPCC	Intergovernmental Panel on Climate Change	UNFCCC	United Nations Framework Convention on Climate Change
IUCN	International Union for Conservation of Nature (The World Conservation Union)	WCMC	World Conservation Monitoring Centre of UNEP
km	kilometre(s)	WWF	World Wildlife Fund/Worldwide Fund for Nature
m	metre(s)		



Wetland vegetation in the Lower Volga, Russia.
PHOTO: ADRIANA DINU

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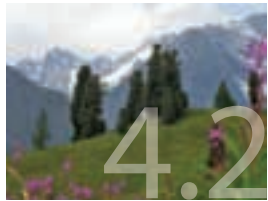


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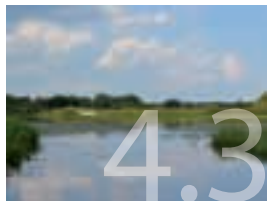
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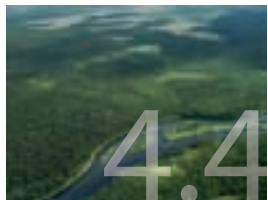
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1

Biodiversity in Europe and the Commonwealth of Independent States in the context of climate change

◀ *Altyn Dala steppe in Kazakhstan.* PHOTO: ADRIANA DINU



The Europe and Commonwealth of Independent States (ECIS) region covers 26 countries and more than 24 million km² (around 16 percent of the global land surface). The ECIS is located in the Palaearctic ecozone and includes in its area 26 temperate forest ecoregions, the majority of the Palaearctic's boreal forest and tundra ecoregions, Mediterranean forests, wet grasslands and world's largest dry steppe ecoregion. The ECIS region also includes the world's largest enclosed sea (the Caspian), its largest brackish sea (the Baltic) and harbours globally significant freshwater ecoregions that include the rivers of Europe and the Russian far east, the deltas of the Volga, Danube and Lena, Lake Baikal (the oldest and deepest lake on the planet), and the Anatolian small lakes. Within the region, there are more than 36,750 protected areas (covering almost 8 percent of its land surface), 17 natural, and three

mixed UNESCO World Heritage Sites¹, 192 Wetlands of International Importance (Ramsar Sites) and 98 UNESCO Biosphere Reserves.

Four of the 34 global biodiversity hotspots are in the ECIS region². The Caucasus Hotspot supports a rich diversity of coniferous, broadleaf and mixed forests, small areas of temperate rainforest, grassland steppe and semi-desert ecosystems. The Mountains of Central Asia Hotspot is a globally important storehouse of genetic diversity for wild crops, containing the unique and highly threatened walnut-fruit tree forest type. Central Asia is one of Vavilov's eight major centres of crop domestication³ for species including almond, apricot, flax, lentil, mustard, cotton, and grapes. The Irano-Anatolian Hotspot contains many areas of unique and threatened biodiversity, with high proportions of endemic

plant and freshwater fish species⁴. The botanical diversity of the Mediterranean Hotspot is outstanding, with 15,000 to 25,000 species, 60 percent of which are unique to the region⁵. About one third of the Mediterranean fauna is also endemic.

Although showing signs of decreasing in some countries, unsustainable use and exploitation (often illegal) remain the most immediate threats to biodiversity across the region, along with land conversion, habitat fragmentation and rapidly expanding recreational use. The world's changing climate represents another growing threat, with major implications for biodiversity and ecosystems⁶. The following sections briefly discuss the state of the region's major ecosystems, highlighting threats from existing or potential impacts of the changing climate.

1 Source: <http://whc.unesco.org/en/list>

2 A 'Biodiversity Hotspot' is defined as 'a biogeographic region with a significant reservoir of biodiversity that is under threat from humans.' See: Mittermeier, R.A., Myers, N. & Mittermeier, C.G. (2000). *Hotspots: Earth's biologically richest and most endangered terrestrial ecoregions*. Conservation International, Washington. Web site: www.biodiversityhotspots.org

3 Vavilov, N.I. (1935). *The phytogeographical basis for plant breeding* (D. Love, transl.). Cambridge Univ. Press, Cambridge, UK.

4 www.biodiversityhotspots.org/xp/hotspots/irano_anatolian/Pages/default.aspx

5 www.biodiversityhotspots.org/xp/hotspots/mediterranean/Pages/default.aspx

6 Millennium Ecosystem Assessment (2005). www.maweb.org



1.1 Forests

Forests cover 27.8 percent of Europe and the CIS, though with a rather uneven distribution. Forest cover is lowest in Central Asia (e.g. 1.2 percent in Kazakhstan, 3.0 percent in Tajikistan, 6.8 percent in Kyrgyzstan), and highest in the Baltic States (e.g. 47.4 percent in Latvia), Russia (47.9 percent), and the Balkan countries. Russia con-

tains around 20 percent of the world's forest resources, including 40 percent of the most valuable coniferous stands, particularly important for their high carbon sequestration potential⁷. This potential is under threat, however, from harvesting and degradation of pristine forest ecosystems.

Forest cover in the European part of the region has been increasing in recent years, while in Central Asia the forest area is expanding slightly⁸. The positive trend in the European countries is primarily attributed to government efforts to curb forest degradation. Cases of illegal logging are becoming less frequent, and more forests in

Taiga forest in the Komi Republic, Russia. PHOTO: MICHAEL R APPLETON



the region are being managed under forest certification standards. Many countries of the region have now signed up to the Programme for the Endorsement of Forest Certification to promote sustainable forest management through independent third-party certification. These countries include Belarus, the Czech Republic, Poland, Lithuania, the Russian Federation, the Slovak Republic, and Slovenia⁹.

Despite the progress in mitigating forest degradation and embracing sustainable forest management practices, the adverse effects of climate change on the forests of the ECIS region are becoming increasingly apparent. Accelerated degradation of carbon-rich, over-mature spruce stands is leading to a proliferation of deciduous stands, resulting in carbon losses. The Intergovernmental Panel on Climate Change (IPCC) report of 2007¹⁰ states that the increased frequency of fire and other anthropogenic impacts on the forest-tundra boundary are likely to lead to replacement of large areas of forest with low

productivity grasslands or wetlands. The IPCC report also predicts an upward shift of the tree line of boreal forests by several hundred metres in altitude, restricting the alpine zone to higher elevations and severely threatening high mountain plant and animal communities. The FAO expects that secondary threats related to climate change (e.g. fires, pest outbreaks and storms) are likely to become major drivers of forest degradation in the region¹¹. A 2011 assessment of climate change impacts in Kazakhstan's part of the Altai-Sayan ecoregion states that 'a potential increase in the frequency of fire may result from a drier climate and increased occurrence of forest pests and disease'¹².

Temperature rise will also lead to increased fluxes of soil CO₂ to the atmosphere, and while certain economically valuable pine and spruce forests may benefit from a warmer climate, other forest communities are likely to suffer, particularly where wetland drainage has lowered groundwater levels beyond the reach of forest root

zones. This effect is causing instability and critical declines in the resilience of high biodiversity-value (and carbon-rich) ecosystems such as mature black alder and ash forests, and forest fen wetlands. Furthermore, increases in ozone concentrations from pollution have been blamed by Russian and Belarus scientists for restricting forest carbon accumulation in Central and Eastern Europe¹³.

Primeval beech forest in the Ukrainian Carpathians. ▼

PHOTO: MICHAEL R APPLETON



7 FAO (2010). *Global forest resource assessment 2010*. FAO forestry paper 163. FAO, Rome.

8 Ibid.

9 www.pefc.org

10 IPCC (2007). *Fourth assessment report of the Intergovernmental Panel on Climate Change*. IPCC, Geneva, Switzerland.

11 FAO (2010). *Global forest resource assessment 2010*. FAO forestry paper 163. FAO, Rome.

12 Desmet, P. et al. (2011). *An assessment of the protected area network's vulnerability to climate change impacts in the Kazakhstan part of the Altai-Sayan ecoregion with recommendations for a protected area adaptation strategy*. UNDP, Bratislava.

13 Nakicenovic, N. & Swart, R. (eds) (2000). *Emission scenarios. Special report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, UK. Downloaded from www.ipcc.ch



1.2 Freshwater ecosystems

The biodiversity of freshwater systems in the region has suffered as a result of a range of anthropogenic impacts. These include major modifications to natural ecological processes (through, for example, dam construction and interrupted connectivity of river systems), changes in discharge regimes, water abstraction, over-exploitation of aquatic species, habitat degradation, pollution by agricultural and industrial effluents, and the impacts of alien invasive species. Climate change is acting as an additional stressor, adding to these impacts¹⁴. There has been some progress in reducing pollution in the EU Member and candidate States of Eastern Europe, where the introduction of EU regulations and programmes has led to improved wastewater treatment, reductions in volumes of industrial effluents, reduced use of fertilizers, limits to phosphate content in detergents and lower emissions of atmospheric pollutants.

◀ *Prespa Lake in Macedonia.*
PHOTO: MICHAEL R APPLETON

Fish are one of the most important sources of protein for people in the region. According to an FAO report from 2011¹⁵ the inland waters of Central Asia produced more than 57,000 tonnes of fish in 2009, but this was just over a quarter of what was harvested in 1988. Eastern Europe has not seen such a dramatic collapse, and has a current annual production of around 50,000 tonnes. In the Russian Federation, the production of inland fish was around 437,000 tonnes in 1988; catches declined to about half that figure in 1994, but have now stabilised. Overfishing as a result of inadequate regulation and enforcement is the most obvious cause of the collapse of fisheries, but in Central Asia the declining quality and quantity of water and wasteful water management have also been major contributing factors. The spread of alien invasive species, through deliberate or accidental introduction, has also had a major impact on fisheries of native species and on entire aquatic ecosystems. All of these problems are likely to be exacerbated by climate change.

14 Verdonshot, Piet F.M. et al. (2010). Climate change and the hydrology and morphology of freshwater ecosystems. In eds Kernan, M., Battarbee R. & Moss, B. *Climate change impacts on freshwater ecosystems*. Blackwell Publishing Limited.

15 Welcomme, R. (2011). *Review of the state of the world fishery resources: inland fisheries*. FAO Fisheries and Aquaculture Circular No. 942, Rev. 2. Rome, FAO.



Krka National Park, Croatia. PHOTO: ADRIANA DINU

Wetland in Nuratau Nature Reserve, Uzbekistan. PHOTO: MICHAEL R APPLETON



1.3 Wetlands

The rate of wetland loss in the region accelerated dramatically in the twentieth century, and this trend is expected to continue. Large tracts of eastern European wetlands have been drained and converted to arable agriculture. For example, less than 10 percent of Poland's once vast peat bogs remain intact, while in Bulgaria, of 200,000 ha of wetlands at the start of the last century, only 11,000 ha have survived¹⁶. Increasingly, various forms of pollution (e.g. eutrophication, contamination with heavy metals and radioactive material, acidification and salinization) are affecting water quality, while over-exploitation of groundwater resources threatens the very existence of many important wetlands. Global climate change is predicted to accelerate the loss and degradation of wetlands, leading to the decline and disappearance of many of the species they support¹⁷.

With growing demand for reliable supplies of water and power, increases in dam construction and refurbishment can be expected¹⁸, yet some types of wetland can play a valuable role as 'natural infrastructure', providing significant water storage capacity. This message has already been picked up by several countries in the region (e.g. Lithuania, Belarus, the Russian Federation and Kazakhstan), which have pioneered innovative and practical wetland restoration techniques, and extended protected area systems to include wetlands providing the important services of freshwater storage and purification.

*Cranes (*Grus grus*) are a flagship species for the many of the region's wetlands.* ►

PHOTO: ALEXANDER KOZULIN (BELARUS)



16 Jones, T. (1997). The European region: an overview of European wetlands. In *Wetlands, biodiversity and the Ramsar Convention: the role of the Convention on Wetlands in the conservation and wise use of biodiversity*. Ramsar Convention Bureau.

17 Millenium Ecosystem Assessment (2005). *Ecosystems and human well-being: wetlands and water synthesis*. World Resources Institute, Washington, D.C.

18 Acreman, M.C. (2012). *Wetlands and water storage: current and future trends and issues*. Ramsar Scientific and Technical Briefing Note no. 2. Ramsar Convention Secretariat, Gland, Switzerland.



1.4 Peatlands

Peatlands and areas of active peat formation cover over 370 million ha in the Russian Federation, more than 20 percent of the country¹⁹. Belarus, Estonia and Latvia also have high rates of peat formation and are, respectively, 7.9 percent, 7.2 percent and 4.9 percent peat-covered. Lithuania, Georgia, Bulgaria and Armenia have more than 2 percent peatland coverage. Around 20 percent of the peatlands in the Russian Federation are classified as permafrost, a form unique to this region. Vulnerability to climate change is especially high in these permafrost peatlands and in the peatlands in the forest-steppe and steppe zones of Ukraine, Moldova, Bulgaria, Romania and Turkey.

◀ *Elnya peatland in Belarus.*
PHOTO: ALEXANDER KOZULIN

The Russian Federation, Ukraine, Bulgaria, Romania, Croatia, Serbia, Turkey, Georgia and Armenia all contain areas of mountain peatland that are small, yet critical for sustaining natural ecosystem functions and still poorly represented in protected area systems. All of the region's countries have extensive river floodplains, which originally supported valley fens and swamps. In the largest river valleys, natural peatlands now survive only in the least accessible locations, such as river deltas, while in the valleys of medium-sized and small rivers, most peatlands have been almost totally destroyed by long-term human use.

Peatlands are the most important terrestrial sinks of atmospheric carbon, with a potential major role in mitigating climate change²⁰. Russian peat-

lands store up to 2×10^{11} tonnes of carbon, providing the largest national contribution to the world's peatland carbon store²¹. Most countries in the region with extensive areas of drained peatland (e.g. Russian Federation, Belarus, the Baltic countries, and Ukraine) have been piloting schemes for peatland restoration and introducing land use practices recommended by the United Nations Framework Convention on Climate Change (UNFCCC) to mitigate climate change. In particular, these countries have developed and implemented techniques for raising groundwater levels, thereby triggering the resumption of the peat formation process and the associated accumulation of carbon. No country, however, has yet been successful in selling carbon emission reductions from such projects in existing carbon markets.

19 Minayeva, T., Sirin, A. & Bragg, O. (eds.) (2009). *A quick scan of peatlands in Central and Eastern Europe*. Wetlands International, Wageningen, the Netherlands.

20 Ibid.

21 Ibid.



Coastline of the Commandorsky Reserve in the Bering Sea, Russia. PHOTO: ADRIANA DINU

1.5 Marine and coastal ecosystems

The ECIS region's marine and coastal ecosystems range from the Mediterranean to the Arctic Ocean. Their overall condition could be described as satisfactory, attributable to a range of factors, such as the effectiveness of EU environmental legislation (in the Black Sea and Mediterranean countries), progress in implementing international projects and conventions (e.g. in the Black Sea), and physical remoteness, which has protected some areas (e.g. arctic ecosystems) from direct human influence. The coastal fisheries of the Mediterranean countries and the Russian Federation are economically very important; for example, 60 percent of Russia's overall fisheries production comes from Kamchatka and its surrounding waters.

The impact of climate change on marine ecosystems has become increasingly apparent in recent years. The ocean and marine ecosystems are among the largest sinks of carbon on the planet. The net atmosphere-to-ocean flux represents 30.5 percent of the world's carbon storage, while the net atmosphere-to-land flux accounts for just 12.5

percent²². The marine plants that form extensive underwater 'meadows' are responsible for about 15 percent of total carbon storage in the oceans. Meadows of *Posidonia oceanica*, a locally widespread Mediterranean endemic plant, represent a substantial store of carbon. Almost 20 per cent of all known Mediterranean species have their habitat in the *Posidonia* meadows, including the endangered loggerhead turtle (*Caretta caretta*) and the largest bivalve mollusc in the Mediterranean, *Pinna nobilis*²³. Major threats to Mediterranean biodiversity identified by WWF include lack of control over trawling and anchoring sites, inappropriate plans for tourism development, lack of capacity assessment for nautical tourism destinations, untreated wastewaters (urban and industrial) and inappropriate mariculture development. At present, however, around 80 percent of Mediterranean habitats remain unprotected.

In the arctic seas, the impact of climate instability on biodiversity is already being witnessed, and much larger impacts are expected (with signifi-

cant regional variation) over this century. Some places in the Arctic are warming at five to ten times the rate of the rest of the planet. By 2100, the Arctic is expected to have warmed by 3°-5°C over its land and by 7°C over its oceans, contributing to dramatic changes in its ecosystems²⁴. Predicted impacts include a more than 50 percent decline in the extent of summer sea ice, and the displacement of existing arctic species and ecosystems (e.g. polar deserts and tundra) by more southern species and ecosystems spreading northward. Other imminent threats to arctic biodiversity stem from alien invasive species and from the impact of pollution by hydrocarbons and other hazardous materials.

Coastline of the Caspian Sea in Turkmenistan. ▼

PHOTO: MICHAEL R APPLETON



22 Intergovernmental Panel on Climate Change (2007). *Fourth assessment report of the Intergovernmental Panel on Climate Change*. IPCC, Geneva, Switzerland.

23 Boudouresque, C.F. (2004). *Marine biodiversity in the Mediterranean: status of species, populations and communities*. Sci. Rep. Port-Cros Natl Park, 20: 97-146.

24 ACIA (2005). *Arctic climate impact assessment*. Cambridge University Press, Cambridge.



Maçin Mountains National Park in Romania.
PHOTO: MICHAEL R APPLETON

1.6 Mountains

The region's mountain ranges include the Balkans, the Carpathians, the Rhodope, the Pontic Mountains along Turkey's Black Sea coast, the Urals, the mountains of the far east of Russia, the Altai-Sayan, the Tien Shan, the Gissar and the Caucasus. This diverse assemblage encompasses both mountains with distinct altitudinal vegetation belts, which have high rates of endemism, as well as more uniform non-forested mountains.

In all mountain ecosystems of the region, the foothills have traditionally been used for grazing, for arable farming (wheat, potatoes, tobacco) and for orchards. Temperate mountainous semi-natural grasslands are some of the most valuable ecosystems in the agricultural landscapes of the Balkan and Carpathian countries and in Turkey. Centuries of stable management through grazing and hay-making have led to the evolution of semi-natural grassland ecosystems, rich in species and characteristic of their biogeographical region. Declines in the viability of traditional management practices are now threatening these unique grasslands.

The collapse of large scale livestock enterprises in many countries of the former Soviet Union, most notably in Central Asia, has resulted in the dispersal of livestock across numerous smallholdings and family farms, which tend to keep their livestock within a 3 km to 5 km radius around settlements and watering places²⁵. Within this radius particularly, over-stocking and inappropriate choices of livestock species are changing vegetation composition, reducing available herbage, and accelerating land degradation. By the early 2000s, the degradation of most mountain foothills in the region had led to declines in native wild flora and fauna species. The abandonment of the more distant rangelands has resulted in overgrowth by unpalatable weeds, decreased productivity of fodder and reduced areas of irrigated pastures. Climate change is exacerbating these problems, affecting the composition, extent and distribution of mountainous and sub-mountainous pastures.

Mountain meadow in the Russian Altai-Sayan. ►
PHOTO: ADRIANA DINU

²⁵ This is particularly relevant for Kazakhstan, Turkmenistan, Uzbekistan, Kyrgyzstan, Tajikistan, Azerbaijan, and the Caucasus

²⁶ Ministry of Ecology and Natural Resources of the Republic of Azerbaijan (2010). *Second national communication to the United Nations Framework Convention on Climate Change of the Republic of Azerbaijan*. Ministry of Ecology and Natural Resources, Baku. Accessed on-line: <http://unfccc.int/resource/docs/natc/azenc2.pdf>





Kazakh steppe with distant herd of saiga. PHOTO: MICHAEL R APPLETON

1.7 Steppe

The world's largest zone of the steppe biome, the Eurasian steppe, is found in Ukraine, south-west Russia and its neighbouring countries in Central Asia. Grasslands of different types dominate the steppe biome, intermixing with broadleaf forests in the north, and along river valleys in the south. It is estimated that more than 6,000 species of plant, about 100 species of mammal and up to 180 bird species are found in the steppe zone, as well as thousands of species of insects and other invertebrates.

Eight of the 13 steppe ecoregions that make up the Eurasian steppe are present or are entirely contained in the Russian Federation, including the Daurian forest steppe, a WWF 'Global 200' ecoregion. The Pontian steppe province, which extends in a belt between 300 km and 900 km wide for some 3,500 km from the lower reaches of the Danube River in the west to the Altai Mountains in the east, contains over 24 percent of the world's temperate grasslands²⁷. A significant portion of the remaining natural Pontian steppe is in Kazakhstan, where, for example, the Saryarka

Steppe and Lakes World Heritage Site provides a valuable refuge for over half the region's species of steppe flora, several threatened bird species and the Critically Endangered saiga antelope²⁸.

Land conversion and over-grazing continue to cause the degradation and loss of large areas of steppe habitat. Over recent decades, a drastic decline (as a result of poaching and disease) in the number of saiga and other large ungulates has disrupted the stability of steppe communities, in which many plant and animal species rely on grazing by native ungulates to provide favourable habitat conditions. Conservation efforts in countries of the steppe region are still inadequate, in terms of staff technical competencies and conservation approaches, to address comprehensively the continuing fragmentation of steppe ecosystems.

While scientists can estimate general trends, it is very hard to predict both the specific nature and the severity of the impacts of climate change on the steppe zone, as well as the responses of plant

and animal communities to that change. Increasing evidence is emerging, however, to suggest that climate change represents a critical threat to steppe ecosystems. In recent decades, changing climate conditions in Russia have caused discernible shifts in flowering periods of plants, in the seasonal migrations of animals and in steppe ecosystem structure. The past ten years have already seen marked changes in the distributions of many steppe species.

Sandy steppe with salt lake in Kazakhstan. ▼
PHOTO: MICHAEL R APPLETON



27 World Conservation Monitoring Centre and IUCN Commission on National Parks and Protected Areas (1993). *United Nations list of national parks and protected areas*. IUCN, Gland, Switzerland and Cambridge, UK.

28 See: <http://whc.unesco.org/en/list/1102>



2

The diversity of contexts
and challenges in the countries
of the region

◀ *Iztuzu beach, Sulungur Lake and Dalyan channels on Turkey's Mediterranean coast.*
PHOTO: ADRIANA DINU

A useful way to assess the challenges faced by countries in the Europe and CIS region when addressing threats to biodiversity is to divide them

into three political/economic groups, as shown in the left-hand columns of the table below. For comparison, the right-hand columns show

how the countries of the region are categorised by the UNDP Human Development Report of 2011²⁹.

Categorisations of countries in the ECIS region			
Political and economic conditions		Based on the UNDP Human Development Report (2011)	
New EU Member States	Czech Republic, Hungary, Estonia, Latvia, Lithuania, Poland, Slovakia, Bulgaria, Romania.	Countries with very high human development	Czech Republic, Slovenia, Estonia, Hungary, Poland, Slovakia.
Countries that are planning to join the EU	Croatia, Turkey, the Former Yugoslav Republic of Macedonia, Serbia. (Candidate countries). Albania, Montenegro, Bosnia and Herzegovina. (Potential candidate countries).	Countries with high human development	Lithuania, Latvia, Montenegro, Romania, Croatia, Bulgaria, Serbia, Belarus, Albania, Russian Federation, Kazakhstan, Azerbaijan, Bosnia and Herzegovina, Ukraine, Georgia, Armenia, Turkey.
Non EU countries (mostly members of the CIS)	Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.	Countries with medium human development	Turkmenistan, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan.

29 United Nations Development Programme (2011). *Human development report for 2011*. UNDP, New York.

2.1 New EU Member States

Members of the European Union are subject to biodiversity legislation that is probably the most demanding in the world; failure to comply with EU standards is liable to financial penalties. Vulnerable species and habitats have to be identified and effectively protected in line with the Habitats and Birds Directives, and Member States must establish and maintain the Natura 2000 network of high nature value sites. According to EU norms, conservation planning can only occur through a participatory process, involving consultations with communities and non-governmental organizations.

Within the EU, a range of funding sources at various scales is available to support conservation activities, reducing the relevance and applicability of sources of support such as the Global Environment Facility, UNDP and the World Bank. Although substantial funding for biodiversity conservation is potentially available from EU structural funds and operational programmes, new Member States have so far mobilised only between 10 and 60 percent of what is theoretically available to them. This is mainly due to insufficient capacities to identify an issue, translate it into a funding proposal, raise the required co-financing, and lobby for its approval by national

and EU bodies. Absorptive capacities for EU funding tend to be concentrated in those countries that acceded earlier, such as the Czech Republic, Poland and Slovakia. Countries that have acceded more recently (e.g. Bulgaria, Romania) still have much lower absorptive capacities, but should, over time, become more effective in securing EU funding and putting it to good use for biodiversity conservation.

While the EU has favourable laws, policies and funding for conservation, it also heavily subsidizes economic sectors that are often in conflict with biodiversity conservation, for example infrastructure expansion and intensive arable farming. The subsidy package available to conventional agriculture is up to 12 times the size of that available to support biodiversity-friendly agricultural programmes. One consequence of this disparity is increased competition for funding between Ministries of Environment and of Agriculture, while the authority and influence of the agricultural lobby often far exceeds that of the conservation lobby. This may explain why none of the countries in the group of new Member States has effectively launched agri-environmental subsidies at the national scale. In all cases, environmental subsidies are far lower than

subsidies for conventional farming, providing little incentive for farmers to retain traditional, biodiversity-friendly practices. Even with these limitations, the conservation lobby still has an important role to play in advocating sound ecological management, facilitating biodiversity policy development, and assisting farmers to apply for available funding for conservation and biodiversity-friendly measures.

▼ *Primula farinosa*, Belianske Luky, Slovakia.
PHOTO: TOMAS DRAZIL





2.2 EU candidate and potential candidate countries

The extent to which conservation legislation in individual countries in this group approximates that of the European Union is uneven. National legislation relevant to biodiversity varies from being sophisticated and quite well enforced (e.g. Turkey, Croatia), to out-dated and ineffective (e.g. Bosnia and Herzegovina). Some countries have very strong protected areas, while in others (e.g. Bosnia and Herzegovina, Albania, Serbia) effective conservation is very limited. Despite the differences, the committed drive towards maximum approximation with EU norms is the common denominator for conservation planning in all candidate countries. Although the European Union has accession support programmes in all these countries, the lack of specific support for biodiversity within EU

accession funding has, upon accession, led to problems for Bulgaria and Romania in fully complying with EU directives. The governments of countries in this group are required to start to establish Natura 2000 networks and to protect species and habitats under EU directives, and many are already taking the first steps, often using the Council of Europe's 'Emerald Network' as a stepping stone. However there is still only limited capacity to identify sites and species for protection, to organize public consultations on best protection regimes, and to reconcile conservation planning with economic planning. For these reasons, additional technical support and investment from UNDP, including administration of GEF funding, remain high priorities for these countries.

◀ *Reed cutter in Monospitovo Marsh, Macedonia.*
PHOTO: MICHAEL R APPLETON

2.3 Non EU countries

One common element among this group of countries, most of which are Members of the Commonwealth of Independent States, is their Soviet past. Regardless of the cultural and historical differences of its constituent nations, the Soviet Union favoured a 'one-size-fits-all' model for the governance of all aspects of life, including natural resource use and protection. Since the break-up of the Soviet Union in 1991, each country has been building its own governance systems. Yet the generational memory of the Soviet Union still far exceeds that of post-Soviet independence, which explains similarities across many of the countries in conservation policies, practices and institutional settings, which have frequently not progressed greatly from the Soviet model.

The overall protected area coverage in the CIS is 8.5 percent, ranging between 4 percent (Turkmenistan) and 22 percent (Tajikistan). Russia and Kazakhstan have the largest protected areas in the region, some of them covering over four million ha.

Each country in this group has a national Red Data Book that normally has legal status (i.e. the listed species must be protected); but these are usually bulky academic volumes, consulted pri-

marily by scientists and unknown to the public at large. Moreover, they only cover species, omitting threatened ecosystems. No equivalent of the EU Habitats Directive exists in any of the countries, which may, to some extent, explain why industrial, infrastructural and agricultural development frequently pay little attention to ecosystem values.

State financing and international donor funding remain the predominant sources of support for the protected area estate in these countries, and there are common weaknesses in approaches to financial planning and management. When budgeting for protected areas, managers generally tend to think in terms of allocated annual operational budgets, rather than planned and targeted programmes of conservation. Strict nature reserves are often preferred over regimes that allow some forms of co-management and co-existence between economic activities and conservation. Few protected area managers have the capacity or authority to generate income at the site level (e.g. from tourism or resource use charges), or to reinvest any income that is generated into management of the site. In some countries, this type of approach is discouraged and is not allowed under existing legislation.

In recent years, all countries in this group have been facing budget difficulties, aggravated by the continuing economic crisis. In the majority, the state budget for conservation has been falling since 2008, while no new large sources of external funding have become available. The European Union has been supporting some of these countries through its good neighbourhood programmes, but biodiversity conservation has only been included in small to medium-size projects under these programmes. In this context, funding from the multilateral donors, and especially from the Global Environment Facility, is playing a vital and significant role.

Overgrazed foothills in southern Uzbekistan. ▼
PHOTO: MICHAEL R APPLETON





3

UNDP, biodiversity conservation and sustainable ecosystem management

◀ *Local farmer, Küre Mountains, Turkey.* PHOTO: YILDIRAY LISE



3.1 UNDP's global strategy

The sustainable management of biodiversity and ecosystem services are keys to achievement of the Millennium Development Goals, and to combating poverty. UNDP addresses biodiversity loss primarily because it threatens to increase poverty and undermine development, but also because the causes of biodiversity loss stem from underdevelopment. In particular, the two main causes of biodiversity loss are weak governance systems (policies, institutions and accountability) and market failures, whereby the market fails to signal a price for many of the diverse services provided by ecosystems. Support to government authorities to address the governance and market failures that drive biodiversity loss requires the broad experience, ability to leverage, and trusted credibility of a neutral UN agency.

The objective of UNDP's biodiversity work is maintaining and enhancing the beneficial services provided by natural ecosystems, in order to secure livelihoods, food, water and health security, to reduce vulnerability to climate change, to store carbon and to avoid carbon emissions from land use, land use change and forestry.

UNDP is addressing biodiversity loss and ecosystem degradation through two signature programmes:

- Mainstreaming biodiversity management objectives into economic sector activities to ensure that production processes maintain essential ecosystem functions that sustain human welfare.
- Releasing the economic potential of protected areas (22 percent of the Earth's surface area, including indigenous and community conserved areas) so that they are able to fulfil their management functions, are sustainably financed and contribute towards sustainable development.

As of early 2012, UNDP's global portfolio of ecosystem and biodiversity projects, mainly funded by the GEF, consisted of 157 projects under implementation, with a value of \$584 million in GEF funding directly administered by UNDP, and of \$1.72 billion when parallel funding is included³⁰. In addition, UNDP has a GEF pipe-

line of 120 projects worth \$350 million in GEF grants and \$250 million in co-financing. Since 1992, the GEF Small Grants Programme, implemented by UNDP, has supported 7,628 community-based biodiversity projects globally, with a total value of \$180 million, and has been able to leverage a further \$269 million in cash and in-kind co-financing. Several other UNDP environment programmes also contribute towards biodiversity management in the region, including the UNDP-UNEP Poverty-Environment Initiative, the UN REDD Programme, UNDP's International Waters Programme, and initiatives of the Nairobi Dry Lands Development Centre.

Peatland in Lithuania. ►
PHOTO: ADRIANA DINU

30 United Nations Development Programme (2011). *UNDP-GEF global portfolio review*. UNDP, New York.



3.2 The biodiversity portfolio of UNDP in Europe and the CIS

In the ECIS region, UNDP and GEF have supported over 60 ecosystem and biodiversity projects between 1992 and 2012. In early 2012, the portfolio of projects was worth \$101.5 million in GEF funding, and \$290.5 million in committed co-financing³¹. Apart from the GEF, major funding sources include the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)³² and the International Climate Protection Initiative of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)³³. UNDP country offices, jointly with national governments and NGOs in the region, manage and monitor implementation of these projects. The Regional Coordination Unit for Europe and the

CIS, located in Bratislava in Slovakia, assists in project formulation, implementation, monitoring and reporting.

The majority of UNDP supported biodiversity projects in the ECIS region focus on protected areas, concentrating on management effectiveness of individual protected areas, as well as on national policies and financing mechanisms for protected area systems as a whole (for example in the Former Yugoslav Republic of Macedonia, Armenia and Moldova). This concentration on protected areas reflects national priorities for investing in site-based action and also commitments by some governments to expand entire protected area systems (for example in Ukraine, Montenegro and Uzbekistan).

UNDP-GEF is also assisting countries to establish the governance frameworks required to strengthen protected area management more broadly. The economic potential of protected areas is being harnessed through promoting sustainable tou-

rism, sustainable harvesting of natural resources, and development of markets for ecosystem services. Compliance of resource users with protected area regulations is being strengthened, while innovative partnerships between communities and protected area administrations are being established to provide alternative, biodiversity-friendly sources of income to the communities. UNDP has also been instrumental in broadening the application of management planning and business planning for protected areas, in raising awareness of the public on protected area values, and in vocational training for protected area staff.

The biodiversity portfolio of the ECIS region targets a wide range of ecosystems, including coastal, marine, freshwater (including wetlands), lowland grassland, mountains, tundra and forests. So far, projects have benefited 395 protected areas, covering over 87 million ha³⁴. Between 2004 and 2012, the management effectiveness scores of protected areas targeted by UNDP-GEF investment in the

▼ *Maculinea arion*, Carpathian grasslands, Czech Republic.
PHOTO: CARPATHIAN GRASSLANDS PROJECT TEAM



31 Ibid.

32 The GIZ and UNDP partnership focuses on the Caucasus and Central Asia.

33 The Russian Federation and Kazakhstan received complementary funding worth total of €4,868,411 for 2009-2012 for two on-going GEF biodiversity projects to protect carbon sinks of the Altai-Sayan ecoregion, and reduce the natural and human-induced vulnerability to climate change.

34 United Nations Development Programme (2011). *UNDP-GEF global portfolio review*. UNDP, New York.

region increased on average by 23 percent compared to the scores before investment³⁵. UNDP has been particularly successful in strengthening the protected area systems of Romania, Kazakhstan, Lithuania, Belarus, the Altai-Sayan region of the Russian Federation, Latvia and the Former Yugoslav Republic of Macedonia.

Projects for mainstreaming biodiversity conservation have directly benefited over 55 million ha of land and seascapes and indirectly benefited a further 49 million ha³⁶. Agriculture, farming, fisheries, tourism, land use planning and oil-and-gas are the most commonly targeted sectors. Two projects focus specifically on agricultural biodiversity (Georgia and Tajikistan), one project targets fisheries (Kyrgyzstan) and four projects (Hungary, Bulgaria, the Czech Republic, and Slovakia) are helping to jump-start the EU agrienvironmental subsidy schemes for grasslands. Two relatively new projects (Belarus, Moldova) focus on mainstreaming biodiversity conservation into territorial planning, while new projects in Uzbekistan and the Russian Federation will be mainstreaming biodiversity conservation in the oil-and-gas sector. The key challenge in mainstreaming is to identify 'win-win' solutions, whereby production enterprises

benefit and biodiversity is maintained. Overall, such initiatives are usually more complex and produce fewer tangible results in normal project timescales. Mainstreaming projects in the region are likely to grow in number, but to remain fewer than those focusing on protected areas.

To monitor the performance of the portfolio, UNDP-GEF assesses the progress of each project using a standard system that annually rates both implementation and overall progress towards the defined development objective³⁷. In 2010-2011, 89 percent of the projects in the portfolio (40 projects) were rated as Satisfactory or Highly Satisfactory for their progress towards their objectives, while 9 percent (four projects) were rated as Marginally Satisfactory.

The remaining sections of this publication highlight case studies from 30 biodiversity projects across the Europe and CIS region, some completed and some still at various stages of implementation. These projects represent the range of approaches being adopted to implement UNDP's global strategy, the objectives of the Global Environment Facility and the objectives and obligations of the countries themselves. The case studies are arranged

in seven thematic groups, each with an introduction outlining the main challenges faced by relevant projects and the lessons that have been learned in the course of implementation. Each case study highlights selected achievements of a project within a particular theme, but all the projects are characterised by the use of multiple approaches to achieving their objectives in the specific contexts of the country and location where they are implemented.

UNDP is proud of the achievements of its biodiversity teams and their partners in the region. Yet we recognize that we have much more work ahead, as economic challenges and the effects of climate change increasingly influence the conservation agenda. Future projects must focus on the values of natural land and seascapes in their entirety, proposing and facilitating actions that, while conserving species and their habitats, increase the resilience of ecosystems to withstand human threats and strengthen their ability to adapt to climate change.

For further information on the regional programme for Europe and the CIS, contact:

United National Development Programme
Regional Bureau for Europe and the CIS
Grosslingova 35
81109 Bratislava
Slovak Republic.
www.undp.org/europeandcis

35 Management effectiveness of protected areas was measured using the Management Effectiveness Tracking Tool (METT), a standard monitoring instrument for UNDP-GEF projects. For further information see: http://www.panda.org/what_we_do/how_we_work/conservation/forests/tools/tracking_tool/

36 United Nations Development Programme (2011). *UNDP-GEF global portfolio review*. UNDP, New York.

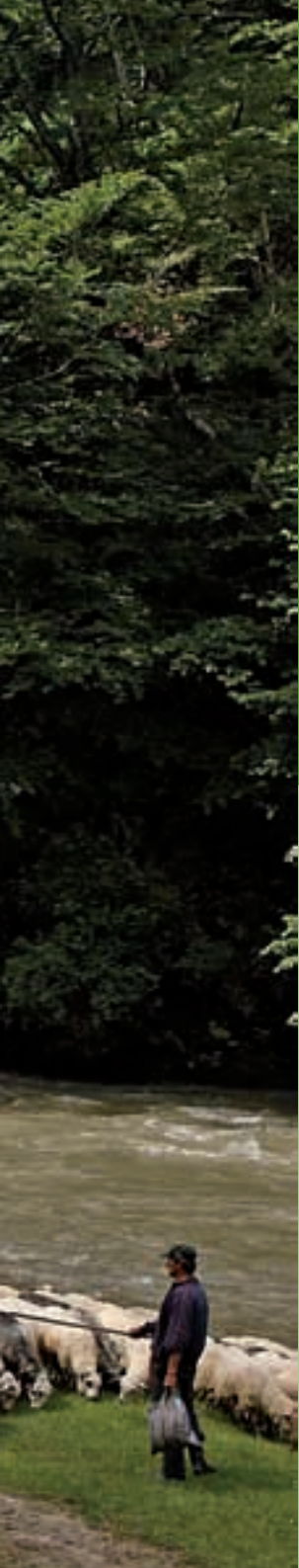
37 Ibid.



4

Case studies from UNDP supported,
GEF financed projects in the Europe
and CIS region

◀ *Tourism and traditions in the Vaser Valley, Maramureş, Romania.* PHOTO: MICHAEL SCHNEEBERGER



4.1 Broadening the roles and functions of protected areas

One of the legacies of the nature conservation policies formerly adopted across much of the region has been a network of strict protected areas (known in many countries as Zapovedniks), established and managed with an exclusive focus on research and non-intervention. Biodiversity conservation has benefited greatly from this approach, but today the resources are no longer available to maintain the large ranger forces and major scientific departments formerly employed by these reserves. Furthermore, pressure has increased on natural resources to supplement human livelihoods, and both decision makers and the wider public have questioned the benefits of maintaining exclusive 'natural laboratories.' Consequently, many protected areas have been left neither with the resources to continue the former regime of management, nor with the help required to develop new approaches that reflect the demands of changing times. The legal strict protected status of many of these sites has prevented the development of activities, such as ecotourism and community based natural resource management, that can build public support and generate income. The result has been degradation not only of biodiversity, but also of the natural systems that support rural communities.

UNDP has been helping to transform the roles and functions of protected areas in almost every country in the region, pioneering initiatives that include: establishing multiple use buffer zones around protected areas, in which a wider range of nature friendly activities can take place; updating laws in order to allow a wider range of functions for protected areas; and establishing new types of protected area with a stronger emphasis on stakeholder involvement and benefit sharing.

Through this work, the regional programme has learnt some important lessons, including the following:

- Building understanding and support among protected area staff is essential. Some staff can be resistant to adopting new working practices and learning new skills, others are very open and enthusiastic to new approaches. The difference often relates to the extent to which staff understand the need for change and the benefits it can bring. If change is seen only as the introduction of inappropriate and risky new ideas from outside, the process of transformation can be difficult.
- Introducing and extending collaboration between protected area authorities and local communities not only often encounters official resistance, it can also be very difficult, both administratively and legally. Projects that have succeeded in establishing collaborative management have done so not by directly introducing 'blueprints' from elsewhere, but by crafting effective solutions that fit the legal, cultural and political contexts of the country concerned.
- Updating legislation affecting protected areas can be slow and difficult, delaying the formal adoption of changes piloted by projects.
- When broadening stakeholder involvement, projects should always avoid making commitments that cannot be kept. For the most part, local people are enthusiastic about becoming involved in managing and protecting multiple use areas, recognising the potential benefits of improved access to natural resources, more participation in governance, jobs and income from ecotourism, and support for sustainable agriculture. However, the socio economic transformation of an area is a complex process that does not happen quickly and cannot be guaranteed to succeed in the course of a

three-year project. It is essential for projects to motivate stakeholders, but not to raise unrealistic expectations of short-term benefits.

- Involving local and regional government can be a major contributor to project success. Establishing buffer zones and Biosphere Reserves usually requires the involvement of local authorities, which have often had little previous contact with centrally administered protected areas. In most cases these local authorities prove to be very open and cooperative partners, appreciating the need for protection of biodiversity and very receptive to measures that aid nature friendly rural development.
- Protected area administrations should avoid being unnecessarily officious and exclusive. Instead, they should work to develop open and inclusive relationships with their local communities and administrations. Becoming a respected part of the local community is a highly effective way to secure cooperation and understanding.

This section highlights three projects from the regional portfolio that have succeed in adopting new approaches to protected area management in contrasting ecosystems.

Mountain shepherd in the Romanian Carpathians. ►
PHOTO: MICHAEL R. APPLETON



Romania: establishing a Nature Park in a multiple use landscape



PROJECT:

Strengthening Romania's protected area system by demonstrating government-NGO partnership in Romania's Maramureş Nature Park (2005-2009)

The project was established with the objective of conserving the biodiversity of Maramureş by adopting an effective and appropriate mode for protected area management. In such a large and diverse area, the most appropriate approach was to adopt the am-

Maramureş: a unique natural and cultural landscape

With an area of over 130,000 ha, Maramureş Nature Park (MMNP) covers approximately 22 percent of Maramureş County, situated in the northern-most parts of the Carpathian Mountains in Romania. The landscapes and ecosystems of MMNP range from river valleys and floodplains, through forested slopes to high-level meadows and peaks of over 1,900 m. 18 major habitat types have been identified, including areas of pristine forest, now very rare in Europe. 24 percent of the plant species known from Romania are found in MMNP, including 26 Carpathian endemics. The fauna is rich and diverse, characteristic of the Carpathian region.

MMNP includes mosaics of natural and human modified habitats and contains many settlements, with a total population of over 90,000. People in Maramureş have maintained close links to their land and environment, managing much of the landscape using traditional eco-friendly practices maintained over centuries. The region is renowned in Romania for its traditions, its cultural heritage and its unique architectural styles, notably the famous wooden churches. Local people cherish and maintain these traditions, and visitors from all over Romania visit to experience the festivals, folklore, costumes, stories and songs of Maramureş.

These unique values are increasingly threatened by habitat fragmentation and degradation, by over exploitation of natural resources and by uncontrolled tourism development. Underlying these threats has been a declining local economy and outmigration of young people to seek work elsewhere. The challenge for Maramureş is to take advantage of its natural and cultural treasures to promote development, without spoiling the unique cultures and landscapes of the region.

bitious target of creating a multifunctional protected landscape. Since 2005, MMNP has progressed from being newly gazetted and existing only on paper to having a fully functioning administrative unit, a comprehensive management plan agreed with all

stakeholders, and working partnerships with regional and local government institutions for implementing and enforcing the management plan. The total area in strict protection zones of the Nature Park has grown from nothing to over 18,800 ha.

“We succeeded in developing a partnership; this is the only way we can function, because you simply cannot do something on your own anymore, this is the world we are living in.”

THE MAYOR OF BISTRA COMMUNE.

The key to these achievements has been developing effective and inclusive forms of governance. Although implementation of the project was led by the National Forest Administration (NFA), the project area extended far beyond the forest estate. The NFA project team had to develop entirely new management approaches, involving a wide range of local stakeholders and building on the foundation established by the Maramureş Biodiversity Consortium, which was established in 2000 with membership from the County Council, the main natural resource agencies and the Ecological Society of Maramureş. The Nature Park Director is now a member of local development committees in the county, and the MMNP management team has become a respected and valued partner in regional development assessments, reviewing investment

and development proposals to ensure that Nature Park regulations are respected, and suggesting alternative approaches for eco-friendly development.

The process of developing the management plan for MMNP has been central to building participation and public support. By involving local interests in the planning process, the project team was able to exchange information and ideas with stakeholders and build a consensus about future management. Of particular importance has been the participatory zonation of the Nature Park in a way that reflects the environmental priorities and economic needs of the area. In order to involve stakeholders in governance, two oversight bodies have been established. The Scientific Council comprises 13 regional academic specialists, and reviews all proposed actions or decisions that have potential environmental impacts. The 54 members of the Consultative Council represent the full range of stakeholders and meets to discuss the plans of the Nature Park, to share ideas for future actions and to work together to resolve problems and conflicts.

With the project now completed, Maramureş Nature Park is considered by the National Forest Administration to be one of Romania’s leading protected areas in terms of the level and quality of management.

Project facts

Duration: 2005–2009. GEF grant: \$1.0 million. Co-financing: \$1.37 million. For further information, contact Ms Catalina Bogdan (Director of Maramureş Nature Park): catalina.bogdan@munti-iMaramuresului.ro; Ms Monica Moldovan (UNDP-GEF Focal Point): monica.moldovan@undp.org

Prislop pass traditional dance festival in Maramureş. ▼

PHOTO: RADU POP



Russian Federation: using multiple strategies to protect globally significant wetlands in the Volga Delta



PROJECT:

Conservation of wetland biodiversity in the Lower Volga region (2005-2012)

The project operates in an ecologically complex area, combining wetlands, meadows, steppes and deserts, with around 240,000 ha in protected areas and one million ha of productive landscapes. The project's main objective is conserva-

tion of biodiversity in four 'core wetland areas', through extending the protected area system, strengthening the regulatory and policy environment, and enabling local participation and alternative income generation.

Despite the challenges of balancing improved biodiversity conservation with economic development, the project has succeeded in expanding the protected areas in the region. The Volga-Akhtuba Floodplain Regional Nature Park has

An ecologically and economically important wetland

The wetland habitats of the Lower Volga region are some of the best preserved in Europe and are included in WWF's 'Global 200' most important ecoregions. Situated on three major bird migration flyways (the East African, Mediterranean and Central Asian-Indian), the wetlands are used for resting and feeding by up to 10 million migrating water birds from Africa, Siberia, the Arctic and India. More than 280 bird species have been recorded, of which at least 15 are globally threatened, including the red-breasted goose (*Branta ruficollis*), white-headed duck (*Oxyura leucocephala*) and Siberian white crane (*Grus leucogeranus*). Part of the delta has been designated as a Biosphere Reserve, while approximately half is a Ramsar Site. At least 20 endemic subspecies of fish occur in the Lower Volga region, which is a breeding area for six Caspian sturgeon species.

Much of the region is heavily populated and economically important. It includes three major cities, Astrakhan, Volgograd and Volzhsky, and numerous towns and villages. The Volga Basin is a major transportation route and provider of water and energy for the Russian Federation. Oil and gas production is also expanding in the region. The Lower Volga and northern Caspian support a major commercial freshwater fishery; about 90 percent of harvested sturgeons come from the area. Despite this economic growth, however, a significant proportion of the region's population remains quite poor, with a high dependence on subsistence farming and fishing.

The main threats to the biodiversity of the Lower Volga region are related to its economic importance; they include the impact of operations of the Volga-Kama system of reservoirs, unsustainable and illegal exploitation of natural resources, and unplanned and unregulated development of housing and transport infrastructure.

been recognised as a UNESCO Biosphere Reserve, and the area of the Volga Delta Ramsar Site has been increased from 800,000 ha to 1,122,500 ha. Several further proposals for reserve establishment and expansion are at various stages of preparation and approval, and substantial progress has been made in aiding the recovery of these important wetlands through restoration of natural hydrological regimes.

The project has recognised that purely protective strategies are not sufficient by themselves. Increasing the territory under effective protection requires public understanding and support, established through awareness programmes targeted at different stakeholder groups, and communicated through publications, public presentations, participation in special events, and work with schools, public media and the internet. The project has also engaged stakeholders in meetings and consultations on major issues and has actively participated in the environmental impact analysis of the Volgograd Reservoir operations. More than 20 organisations have signed a social agreement on implementation of the regional Strategy on Wetland Biodiversity Conservation.

A small grant scheme for local entrepreneurs has delivered direct support to local communities and is now being expanded into a microcredit scheme, based on the model established in the

UNDP supported, GEF financed project in Kamchatka. Beneficiaries of the scheme include handicrafts studios, rural guesthouses and mushroom cultivators.

This project cannot alone address all the environmental and economic challenges faced by the Volga Delta, but by securing a core of protected zones, building awareness and mainstreaming environmental good practice into local development and resource management, it is helping to secure a sustainable future for this unique region.

“One of the main values of the project is its work on proposals for improving the hydrological condition of the wetlands. The project management group can play a leading role in providing recommendations for improving the water use regime and reconciling the operations of the Volgograd water reservoir with wetland biodiversity conservation requirements.”

ANATOLY BYKOV, HEAD OF THE LOWER
VOLGA WATER BASIN BOARD.

Project facts

Duration: 2005-2012. GEF grant: \$6.8 million. Co-financing: \$9.0 million. For further information, contact Ms Natalya Lopantzeva (Project Coordinator): natalya.lopantzeva@volgawetlands.ru

Project web site: www.volgawetlands.ru

▼ *Conducting a wetland biodiversity inventory in the Volga Delta.*
PHOTO: NATALIA SUPRUN



Redefining the scope and functions of Turkmenistan's protected areas



PROJECT:

Strengthening the management effectiveness of the protected area system of Turkmenistan (2010-2013)

The project's overall objective is to create an enabling environment for the establishment of a functional, effective and ecologically coherent system of protected areas in Turkmenistan. At the national level, this involves working with public institutions and agencies to develop the capacity to

Protected areas in Turkmenistan

Turkmenistan is situated in the western part of Central Asia, with an area of 491,200 km², dominated by desert and semi-desert and flanked by mountains in the south. Although 80 percent of the country is classified as desert, Turkmenistan has a very high level of species diversity, with around 3,000 known flowering plants and more than 700 vertebrates, including 105 mammals, 417 birds, 5 amphibia, 89 reptiles and 136 fish species. Many are regional endemics and some are globally threatened, including the Bukhara deer (*Cervus elaphus bactrianus*), north Persian leopard (*Panthera pardus ssp. saxicolor*), white-headed duck (*Oxyura leucocephala*) and small Amu-Dar shovelnose sturgeon (*Pseudoscaphirhynchus hermanni*).

Turkmenistan is situated within one of the eight global centres of plant crop diversity (Asia Minor) identified by N. I. Vavilov in 1935. It harbours significant populations of the wild relatives of important crop plants, including pistachio, grapes, figs, apples, pears, cherries, plums and almonds. The western part of Turkmenistan lies on a major bird migration corridor linking the Western Palaearctic and Africa. The Caspian Sea coast of Turkmenistan is an internationally important staging post and wintering area for waterfowl migrating from the breeding grounds of the Volga Delta and areas further north.

After independence in 1991, Turkmenistan undertook significant efforts to conserve its unique biodiversity by establishing a network of protected areas covering 3.9 percent of the country's territory. Most protected areas are situated in mountains, forests and wetlands, while desert ecosystems are still inadequately represented. The protected area system comprises mainly strict nature reserves, with no national parks (IUCN Category II) or similar management categories. The concepts of multiple use, integrated management of natural resources and sustainable use of protected areas have not been introduced or adopted, but the strict protection approach is no longer exclusively appropriate in the new political and socio-economic context of Turkmenistan.



Landscape in the Sünt-Hasardag Reserve, Turkmenistan. PHOTO: MICHAEL R APPLETON

consolidate, expand and effectively manage the protected area system. At the local level, the goal is to establish the first national park in Turkmenistan in the Kopetdagh Mountains, south-west of the capital Ashgabat.

The project is still in its early stages, developing the strategies required to meet the considerable challenges of updating the system of protected areas of Turkmenistan, where experience of new approaches to protected area management is still quite limited. The national park concept has widespread support, but establishing such an institution is a complex process. Preliminary studies of the proposed area for the national park have been conducted with support from an international NGO, the Michael Succow Foundation. These

studies have proposed an area of around 150,000 ha (centred on an existing strict nature reserve) and a provisional system of zonation. By commissioning a set of scoping studies from national consultants, the project management team has now helped to build a wider understanding among the expert community of what it is working to achieve, as well as developing its own understanding of the scope of the work required to establish the national park. Based on these studies, the following tasks have now been prioritised:

- Educating decision makers and the wider public about the function, purpose and values of national parks and adapting the national park concept to the specific context of Turkmenistan;

Project facts

Duration: 2010-2013. GEF grant: \$0.95 million. Co-financing: \$2.598 million. For further information, contact Mr Rovshen Nurmuhamedov (UNDP, Ashgabat): Rovshen.Nurmuhamedov@undp.org; Ms Shirin Karryeva (Project National Technical Advisor): shirinkarryeva@mail.ru

- Drafting a new Law on Protected Areas of Turkmenistan and developing a specific regulation that will allow a national park to be established;
- Developing entirely new models for collaborative governance in the buffer zone and sustainable use zone of the proposed new national park. This includes resolving complex issues of overlapping mandates and responsibilities;
- Training protected areas staff and natural resource managers in new techniques for working with local stakeholders and for developing ecological tourism.

A significant lesson from this project has been that the ecological component of protected area establishment can sometimes be the most straightforward. Developing the legal and institutional enabling environments for new types of protected area to function may demand the most time and resources.



Churning butter in a village in the Kopetdagh Mountains.
PHOTO: MICHAEL R APPLETON

4.2 Expanding protected area systems and extending conservation into the wider landscape

Around 13 percent of the world's land surface is now included in protected areas, and while this figure is still increasing, many major ecosystems and the ranges of many endangered species are still inadequately represented in the global network. Improved knowledge and understanding about ecosystems and wildlife, and availability of satellite imagery and GIS technology are now enabling conservationists to plan the expansion of protected area networks in a much more systematic way. We are also recognising that effective conservation does not always require strict protection. The revised definition by IUCN of the range of categories and functions of protected areas³⁸ is now guiding planners to designate different types of protected area according to the particular needs and circumstances of a country or region.

Ultimately, there will be a limit on how much territory can be included in formal protected areas. Consequently, more attention is being paid to developing ecological networks, improving management of the landscapes between the

'islands' that are protected areas. Creation of networks with linkages and corridors of biodiversity-friendly managed land is now widespread, notably in the countries of Central and Eastern Europe. The next challenge is to secure official recognition for these ecological networks, and for them to be formally incorporated into regional land use and development planning processes.

Several projects in the regional portfolio are working to expand systems of protected areas, diversify their functions and enlarge the 'effective protected area' into the wider landscape. This has led to some important lessons for national and regional teams:

- The chances of acceptance of expanded national protected area systems are greatly enhanced if there is a real sense of national ownership. National technical experts should play a leading role in planning system expansion, and the process should involve extensive and regular consultations with stakeholders and

decision makers. It is much more effective to work with these decision makers from the start, than suddenly to present a report at the end of a project and expect it to be adopted.

- Preparing a map of the ideal future system of protected areas is the beginning, not the end of the process. Turning the proposal into reality may require amending legislation, not only directly relating to protected areas, but also relating to land use, forestry, urbanisation and planning. The time and investment required for these changes should not be underestimated.
- As long as conservation is seen as a cost without benefits, decision makers and stakeholders will be reluctant to extend protection, especially in economically difficult times. There is still a widespread perception in the region that 'protected area' means a zone completely withdrawn from any other form of use, and that protected land and water provide no direct benefit to society. Concerted efforts are required to change this perception.

38 Dudley, N. (Editor) (2008). *Guidelines for applying protected area management categories*. IUCN, Gland, Switzerland.



- Land use and development planning legislation and procedures are weak in many countries in the region. Detailed regional spatial plans often do not exist, and where they have been prepared, frequently do not take protected areas into account. Building conservation into strategic land use planning can therefore be very complicated.

This section presents four case studies of protected area expansion and mainstreaming of biodiversity conservation into territorial planning from the Russian Arctic, the lowlands of Belarus, the steppes of Kazakhstan and the diverse ecosystems of Uzbekistan.

◀ *Peregrine falcon (Falco peregrinus) census in the Taimyr project area.*
PHOTO: SERGEY KHARITONOV

Maintaining landscape connectivity in the Russian Arctic: the Taimyr Peninsula



PROJECT:

Conservation and sustainable use of biological diversity in Russia's Taimyr Peninsula: maintaining connectivity across the landscape (2006-2012)

The main objective of the project is the creation of the 'Central Taimyr Landscape Corridor', linking the protected areas in the reindeer's southern wintering grounds, their calving grounds in the central part of the peninsula and their summer

An arctic wilderness

The Taimyr Peninsula in the Russian Federation is the northern-most part of mainland Eurasia, Asia's largest continuous tundra landscape (400,000 km²) and a WWF 'Global 200' priority ecoregion. The vast expanses of tundra fall into four subzones: the largest is the arctic zone, characterized by lichens and mosses, while the southern tundra zone is largely vegetated with shrubs. Polar desert zones occur to a much lesser extent, while Taimyr's small and isolated taiga zones include the world's northern-most larch (*Larix dahurica*) forests.

Within the peninsula's vast mosaic of wetlands, three sites have been recognised as Wetlands of International Importance (Ramsar Sites) and a further eleven have been proposed as Ramsar Sites. In summer, millions of migratory birds of 140 species, including the endangered red-breasted goose (*Branta ruficollis*), nest on the wetlands along the northern coast. Taimyr supports important populations of mammals typical of the high Arctic, such as polar bear (*Ursus maritimus*) and beluga whale (*Delphinapterus leucas*), as well as species characteristic of the tundra and taiga, such as muskox (*Ovibos moschatus*) and more than 600,000 reindeer (*Rangifer tarandus*), Eurasia's largest wild population. These reindeer are a 'keystone' species, whose conservation is critical to the preservation of the entire northern arctic ecosystem and its diverse array of life. Along their 1,400 km seasonal migration routes, they support a host of predators and scavengers, including wolf (*Canis lupus*) and arctic fox (*Alopex lagopus*).

The indigenous peoples of Taimyr, the Dolgan and Nganasan, historically relied on reindeer for their livelihoods, but following collectivization and centralization of natural resource management in the 1930s, many of their traditions died out. Most of these peoples now survive from social payments and from hunting, gathering, fishing and some reindeer husbandry, which is recovering after years of neglect.

Poaching is widespread, largely due to the region's difficult economic conditions. The other main threats to the Taimyr are landscape fragmentation and habitat degradation caused by mineral exploration and exploitation and by road construction. Lack of capacity is also a major limiting factor to improving management of the region, where communication is difficult and living conditions are challenging.



Taimyr landscape. PHOTO: ADRIAN DINU

feeding grounds on the northern coast. This will improve conservation management in more than 15 million ha of arctic wilderness.

Achieving this ambitious objective in such a remote region is challenging. Working beyond the boundaries of state protected areas requires comprehensive engagement with local communities, local and regional governments and various authorities with mandates and responsibilities for natural resource management and economic development. Regional administrative reorganisation in the Russian Federation has required the project team to realign working relationships established with authorities during the design phase of the project. Administrative changes have also had significant social and economic impacts, the consequences of which the project has had to assimilate.

Despite these challenges, substantial progress has been made. The project has facilitated the extension of the Putoranski Zapovednik (strict nature reserve) to include the 787,500 ha Purinski Zakaznik (wildlife management area), a globally significant concentration point of wetland species and part of the reindeer migration corridor. Two further regional zakazniks are now being established, totalling 643,500 ha.

Respecting the traditions of the region and the needs for subsistence of many of its people, the

project has paid careful attention to ensuring that sustainable hunting and gathering are permitted in designated areas, subject to scientifically determined limits. Significantly, the local population, including indigenous people, has expressed unanimous support for creation of the new zakazniks.

“The establishment of the Agapa and Gorbita Zakazniks was supported by the local population at the public hearings. Following this support, the authorities approved our proposal. The situation where a decision on creation of new protected areas is supported and promoted by indigenous communities is quite unique in Russia.”

IGOR KOSTIN, PROJECT MANAGER.

It is essential that the new corridor is recognised by land use planning authorities and incorporated into official development plans. The Land Committee of the Taimyr municipal area has used project materials to ensure that major biodiversity values are included within proposed

Project facts

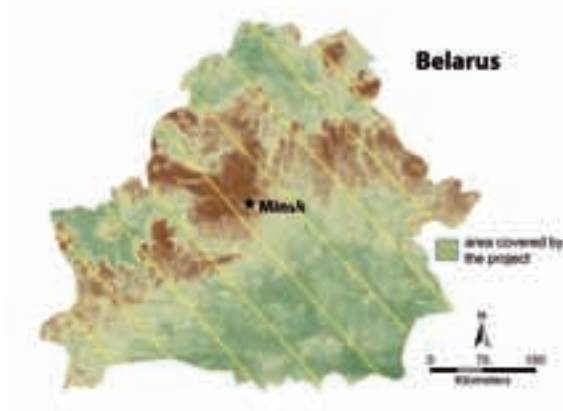
Duration: 2006-2012. GEF grant: \$0.995 million. Co-financing: \$2.043 million. For further information, contact Igor Kostin (Project Manager): igor.kostin@undp.org

protected areas. The project is now preparing a detailed programme for Taimyr biological and landscape diversity preservation that defines a special protection regime for the entire 15 million ha landscape corridor. The intention is to include this programme in the official Regional Territorial Development Plan.

Taimyr tundra plant species identification. ▼
PHOTO: ELENA POSPELOVA



Belarus: building biodiversity conservation standards into land and resource use planning



PROJECT:

Mainstreaming biodiversity conservation into territorial planning policies and practices (2010-2014)

The objective of this project is to help remove systemic, regulatory and capacity barriers to mainstreaming biodiversity conservation priorities into the territorial planning policies and practices of Belarus. Two major programmes of activity are in-

cluded: enabling a regulatory, policy and institutional framework for land-use planning that reflects biodiversity considerations outside protected areas; and testing models for biodiversity-compatible land-use plans at the district level. These programmes should lead to enhanced ecosystem integrity outside protected areas in ten adminis-

trative districts of Belarus (approximately 2 million ha). In the longer term, replication of these measures could ensure the integrity of fragile ecosystems across 36 percent of the country.

The project has been conducting its work from three different perspectives.

The biodiversity of Belarus extends far beyond its protected areas

Deciduous forests, wet meadows, fens, bogs, lakes and riverine ecosystems play particularly important roles in the conservation of regionally and globally significant biodiversity in Belarus. This rich mosaic of ecosystems provides habitat for a high proportion of the global or European populations of several IUCN red listed species, including 50 percent of the aquatic warblers (*Acrocephalus paludicola*), 18 percent of greater spotted eagles (*Aquila clanga*), 14.6 percent of black storks (*Ciconia nigra*) and 10 percent of corncrakes (*Crex crex*). Substantial populations of European bison (*Bison bonasus*), grey wolf (*Canis lupus*) and brown bear (*Ursus arctos*) are also present, as well as diverse orchid species and other plants of international significance. The global importance of the country's biodiversity is underscored by the presence of 47 Important Bird Areas, eight Ramsar Sites, and three UNESCO Biosphere Reserves.

This important biodiversity is in part secured by the protected area system of Belarus (covering 7.9 percent of the national territory), but it also relies on diverse, human modified, semi-natural habitats outside the protected areas. Around 30 percent of species included in the national Red Data Book are present in these human-modified landscapes, most notably in open water areas, wetlands, drained floodplains, mature forest plantations, old landscape parks and agricultural areas under traditional cultivation. Without legal protection, these biodiversity rich areas are threatened by changes in local land use and by new patterns of agriculture, forestry, fisheries and hunting. Furthermore, as these areas are lost, so the protected areas become more isolated from each other, diminishing their effectiveness as protected nodes in the ecological landscape.

Species conservation. Detailed biodiversity inventories of pilot areas have provided the data and justifications required for official modification of land use plans. Three species action plans for wild fauna in the national Red Data Book have been updated, and five new action plans for fauna and flora have been developed. These action plans will be reflected in the revised land management plans of the relevant districts. Standards have been developed for the protection and maintenance of wild flora and fauna in forest and land management projects, as well as in the wider landscape. Specialists from local hunting enterprises and unions and from forestry enterprises have been trained to implement the protection measures specified for Red Data Book species.

Ecosystem conservation. The project has supported a new analysis and classification of biotopes of national and international significance, to be published as the 'Directory of rare and threatened biotopes of the Republic of Belarus.' Criteria and indicator species have been specified for the designation of each threatened biotope, and recommendations have been prepared on minimum standards to be observed by different economic activities to maintain the integrity of key biotopes and habitats. It is intended that these standards will be legally adopted, helping to harmonise national nature protection legislation with international norms.

Local land use planning. Within the pilot area in Volozhin and Korelichi Districts, 23 rare and threatened biotopes of European significance have been located and described, leading to the development of integrated territorial plans that accommodate biodiversity priorities. The forest management plan for Volozhin Forestry District has also been updated, reflecting the requirements for the protection of rare and threatened species and biotopes.

The next steps are to continue to incorporate these initiatives into national law and to use the results of the project's work to support the scientific justification for Belarus to become a sig-

Project facts

Duration: 2010-2014. GEF grant: \$0.971 million. Co-financing: \$7.084 million. For further information, contact Vladimir Koltunov (Project Manager): vladimir.koltunov@undp.by

natory of the Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention).

A new sign explains the management regime for a site of conservation importance. PHOTO: MIKHAIL MAXIMENKOV ▼



Extending and diversifying protection in the steppes of Kazakhstan



PROJECT:

Steppe conservation and management (2009-2014)

This project is working towards a set of long-term solutions for biodiversity and ecosystem conservation in the steppe zone, based around development of a landscape-based approach to protected area expansion and management. The starting point has been the identification of conservation priority areas within the steppe zone,

The steppes of Kazakhstan

Of the vast steppes that once stretched from Ukraine to Mongolia, one of the biggest remaining areas is located in Kazakhstan. The steppe zone covers some 160 million ha across the northern and central sections of the country, and includes around 123 million ha in a natural state. It comprises five largely contiguous ecological zones: forest steppe, meadow steppe, dry steppe, desertified steppe and steppe semi-desert, as well as extensive wetland ecosystems fed by the waters from the melting winter snow.

These ecosystems support over 2,000 species of flora, including about 30 endemic species and many unique botanical communities. They also provide habitats for nine of the 24 globally endangered mammal species occurring in the country. The flagship species of the steppe lands is the saiga antelope (*Saiga tatarica*), a migratory species, which once numbered in millions and is now reduced to a small fraction of that number, mainly as a result of poaching. In the summer months, the steppe supports millions of nesting birds, including critically endangered species such as the sociable lapwing (*Vanellus gregarius*).

Although the Kazakh authorities have now done much to eliminate poaching and stabilise the saiga population, sporadic disease outbreaks continue to threaten the herds. A further and growing threat is climate change, which is causing a northward shift of the steppe zones and leading to desertification in the southern parts. In addition, fragmentation caused by road and pipeline construction threatens to interrupt migration routes. Seemingly small changes in such a vast area can reduce the options for seasonal migration of saiga, causing them stress and affecting breeding success.

In 2009, only 1.7 percent of remaining natural steppe habitat (outside forest steppe) was protected. The Government of Kazakhstan is committed to improving protection, but static protected areas cannot alone deliver the protection required. The steppe is a naturally dynamic ecosystem, even more so with the effects of climate change. Saiga migration routes and breeding areas can vary in response to weather conditions, to water and food availability and to disturbance and hunting pressures. The protected areas have large ranger forces, but these can only ever oversee a tiny fraction of the territory; measures are required to extend the responsibility for protection to other agencies and stakeholders.



New-born saiga calves. PHOTO: ADRIANA DINU

conducted in partnership with the Association for the Conservation of Biodiversity in Kazakhstan (a national NGO). This has involved field expeditions, radio collaring and helicopter tracking of saiga, surveys of breeding birds and analysis of satellite images. The results of this work and of other studies in west Kazakhstan have been used to justify a set of detailed proposals for an interconnected network comprising permanent staffed protected areas, seasonally protected areas, sustainably managed hunting grounds and collaboratively managed buffer zones and corridors.

▼ *Signing of an agreement on the borders for the proposed Altyn Dala Nature Reserve. PHOTO: A. AGAZHAYEVA*



Establishing this network has involved preparation of detailed ecological justifications, technical feasibility studies, land allocation processes, negotiations with land users, public hearings, approval of land use planning acts and budget requests, approval of draft government regulations, and lobbying for protected areas establishment with Parliamentary Deputies. The results so far have been highly significant and have included:

- Formal declaration of Buiratau National Nature Park (88,968 ha of dry steppe);
- Preparatory works for establishment of Altyn Dala State Nature Reserve, to include 489,766 ha of desertified steppe;
- Extension of Irgiz-Turgai State Nature Reserve by 410,506 ha; and
- Establishment of Bokeyorda-Zhaiyk State Nature Reserve.

Beyond the protected areas, the project has worked with the Forestry and Hunting Committee of the Ministry of Agriculture to develop proposals for creating and managing a network of hunting zones and ecological corri-

Project facts

Duration: 2009-2014. GEF grant: \$2.245 million. Co-financing: \$5.702 million. For further information, contact Assylkhan Assylbekov (Project Manager): Assylkhan.Assylbekov@undp.org

dors, overseen by the administrations of nearby protected areas with the participation of local communities. These proposals have been approved by Parliament and are expected to come into law in the near future. In order to build capacity for management of this new network, the project has provided technical support for the new and expanded protected areas, facilitated participatory development of management and business plans and delivered a comprehensive programme of training courses.

The final outcome of the project should be an effective and diverse system of protection for the steppe that is implemented by a range of stakeholders, that is representative of all the variations in steppe ecosystems and that is adaptable both to the changing requirements of the migratory saiga and to the impacts of long-term climate change.

A comprehensive national plan for protected area expansion in Uzbekistan



PROJECT:

Strengthening sustainability of the national protected area system by focusing on strictly protected areas (2008-2012)

To support the day-to-day needs of local communities and to provide new opportunities for improving their livelihoods, the project is piloting an innovative buffer zone covering 22,750 ha around the strictly protected Surkhan State

Nature Reserve. The buffer zone will not only extend the 'effective protected area' and prevent the ecological isolation of the Reserve, it will also help local communities to improve management of water and land, to reduce overgrazing and to secure supplies of fuel wood, providing a strong impetus for people to feel responsible for safeguarding the Reserve. It is anticipated that this approach will be adopted by other strictly protected areas in Uzbekistan.

At the national level, the project is supporting preparation of a master plan for the expansion, categorisation and effective management of the entire national system of protected areas. The plan has been developed by a team of national consultants through a comprehensive process:

- The team mapped the current national ranges of key species, ecosystems and cultural features, and developed criteria for selection of areas of conservation priority. In order to avoid duplication of effort, this process paid close attention to the results of previous studies and proposals for system expansion.
- A gap analysis exercise provided a comparison between the current coverage of the protected area system and the ideal coverage based on the criteria developed, leading to the preparation of provisional maps of priority areas for conservation.

Protected areas in Uzbekistan

The Republic of Uzbekistan covers approximately 447,400 km²; 85 percent of which comprises deserts or semi-deserts, flanked by the extensive Tien Shan and Gissar-Alai mountain systems in the east and south-east. The country supports significant numbers of globally threatened species, including snow leopard (*Panthera uncia*), saiga antelope (*Saiga tatarica*), urial (*Ovis orientalis bochariensis*) and markhor (*Capra falconeri heptneri*). Uzbekistan has a high level of endemism, with several central Asian species originating in the area between the Amu Darya and Syrdarya Rivers, from where they dispersed to the other countries in the region.

Uzbekistan's system of protected areas covers almost 6 percent of the country and mainly comprises strict nature reserves. This system does not effectively safeguard national biodiversity, as it is not ecologically representative, leaving large numbers of species, ecosystems and ecological processes without adequate protection. The administrations of many of the existing protected areas lack the capacity for effective protection and management of the species and ecosystems they contain, while the prevailing strict protection regimes restrict the introduction of income generating activities and of collaborative management with local communities.



▲ Community consultation in the proposed buffer zone of Surkhan Reserve. PHOTO: MICHAEL R APPLETON

- GIS was used to analyse the various maps and to apply a rational scheme of site prioritisation to identify the most important locations for protected area expansion and creation, and to assign categories to each proposed protected area.
- Standard 'passports' were prepared, describing each protected area in the proposed new system.
- One national and four regional multi-stakeholder workshops were conducted, serving to explain the rationale for system expansion, present the proposals, and solicit feedback and new information.

The final master plan envisages a more than three-fold expansion of the territory within protected areas, and a diversification of the categories of protected area in order for them to fulfil a much wider range of functions, combining, where appropriate, nature protection with local sustainable development and nature based tourism. Several international experts have commented on the high quality and thoroughness of this work, and on the way it has combined national expertise with wide consultation and participation; the next step is for the plan to be formally adopted by the Government of Uzbekistan.

Project facts

Duration: 2008-2012. GEF grant: \$0.975 million. Co-financing: \$12.4 million. For further information, contact Akmal Ismatov (Project Manager): Akmal.ismatov@undp.org

"Recommendations for expansion of the protected areas system can be considered as sustainable investments in the future development of Uzbekistan. Fully-fledged practical implementation of these recommendations would ensure long-term conservation of biodiversity in Uzbekistan, along with sustainable use of nature resources for future generations."

S. ERGASHEV,
NATIONAL PROJECT COORDINATOR,
DEPUTY MINISTER OF AGRICULTURE
AND WATER RESOURCES OF THE REPUBLIC
OF UZBEKISTAN, HEAD OF THE MAIN
FORESTRY DEPARTMENT.

4.3 Integrating biodiversity conservation with climate change mitigation and adaptation

Much of today's international media attention on climate change focuses on sea level rise and its impacts on coastal zones. The impacts on continental Eurasia receive far less attention, but are becoming increasingly apparent; projects across the region have witnessed some major changes:

Shifting of ecosystems. In Kazakhstan, the boundaries between taiga forest, steppe and desert are all moving northwards. This affects the distribution of wildlife communities, migration patterns, water supplies and human livelihoods.

Water shortages. In Surkhan Nature Reserve in Uzbekistan, local stakeholders report reduced rainfall and snowfall in the mountains, and many of their springs are running dry earlier each year.

Increased fires. In Russia, unusually dry weather has extended the high-risk period for forest fires to include the early summer and spring.

Land degradation. In Turkmenistan, the risk of desertification increases as rangelands are no longer able to tolerate current numbers of grazing animals.



Landscape from the proposed Sumbar National Park, Turkmenistan.
PHOTO: V. I KUZNETSOV

Black winged stilt (Himantopus himantopus) in the Volga Delta.
PHOTO: ALEXANDER POPOV



In response to these growing and increasingly evident threats, governments across the region are paying more attention to climate change, intensifying research on the specific environmental changes and their impacts, participating in international programmes for reducing carbon emissions, and seeking local solutions for mitigation and adaptation. Significantly, there is a growing appreciation of the importance of the natural ecosystems of protected areas in climate change management. Projects across the region are working to support national efforts to address climate change, building knowledge and experience on the best approaches and learning some useful lessons:

- Although forests at higher latitudes do not sequester carbon at the same rate as tropical forests, the slow rates of growth are offset by the vast areas of the taiga and the northern peatlands, which have a significant role to play in global carbon mitigation.
- Restoration and good management of wetlands and peatlands can generate significant benefits, not only for biodiversity, but also for climate change mitigation.
- The large nations of the region, that include ecosystems across a wide spread of latitudes, are well suited to monitoring the regional effects of climate change.

- Local stakeholders can provide detailed and important information about local changes in climate, the effects on their livelihoods and about possible means of mitigation and adaptation.
- Collecting reliable data on climate change impacts is not sufficient by itself; it is also vital to make that data available to decision makers and other stakeholders in ways that can be readily understood.
- Protection of biodiversity in the region cannot necessarily be guaranteed just by 'static' protected areas. Measures are required to extend protection into wider landscapes and to maintain connectivity between protected areas and between ecosystems.
- The threat of fire can play an important role in focusing awareness on climate change, stimulating action among authorities and local communities.
- Projects need to work to ensure that measures introduced for climate change mitigation and adaptation are incorporated into policy and planning frameworks at the local and national levels.

Four contrasting case studies are highlighted in this section, from the boreal forests of northern Russia, the mountains of Kazakhstan, the peatlands of Belarus and Lake Balaton in Hungary.

Post-extraction peatland restoration is recreating habitats and reducing carbon emissions in Belarus



PROJECT:

Renaturalization and sustainable management of peatlands in Belarus to combat land degradation, ensure conservation of globally valuable biodiversity and mitigate climate change (2005-2010)

Implemented by UNDP and the Ministry of Forestry, the project worked with the peat industry to develop and demonstrate new approaches to post-extraction rehabilitation, and

to transform the practical experience into policies for regulating the extraction sector. By June 2010, the project had restored 28,207 ha of degraded peatlands by raising water levels at 15

Why peatlands are important

The planet's 400 million ha of peatlands (3 percent of the land area) hold up to one third of its soil carbon. Peatland ecosystems, which in cooler climates may have taken centuries to develop, provide irreplaceable habitats for threatened species, sources of organic fertilizer, raw materials for numerous products, clean water, regulation of micro-climate and hydrological conditions, and effective means for controlling fires, erosion, floods and contamination. Europe alone (excluding Siberia) currently has 3.22 million ha of natural peatlands.

In an undisturbed state, peatlands are a stable store of carbon. Although they naturally emit methane and nitrogen oxides, they also sequester carbon dioxide as they grow; a pristine peatland therefore has a generally neutral global warming impact. Once pristine peatlands are disrupted by human activities (e.g. drainage for agriculture, peat extraction or forestry), the carbon which they store is rapidly released into the atmosphere.

The territory of Belarus included nearly 3 million ha of peatland before exploitation accelerated in the 1950s. Since then, more than 54 percent of peatlands have been drained for extraction and agriculture. Drainage causes peat mineralisation, accelerating CO₂ emission and reducing soil fertility. The drained peatlands are also prone to fire and to wind erosion, accelerating land degradation and resulting in smoke, dust storms, biodiversity decrease, and dispersal of radioactive compounds left after the Chernobyl disaster. Peatland degradation in Belarus is responsible for annual emissions of about 9 million tonnes of CO₂.

As these impacts have become more apparent to national authorities and local stakeholders in Belarus, the Government has started to take steps to improve management and protection of the remaining peatlands.



Grichino peatland after restoration, Belarus. PHOTO: A.KOZULIN

sites, preventing annual emissions of about 270,000 tonnes of CO₂ and saving the country up to \$1 million in fire-fighting operations. Just one year after rehabilitation, most sites showed re-emergence of typical wetland vegetation and an increase in the density of water birds of up to 16 percent. In these restored wetlands scientists have recorded many species that had previously disappeared, including IUCN red-listed species such as the greater spotted eagle (*Aquila clanga*), black-tailed godwit (*Limosa limosa*) and bittern (*Botaurus stellaris*). Local people have welcomed these restored peatlands as places for hunting and fishing, and for collecting medicinal plants, cranberries, bilberries, and mushrooms.

At the policy level, the project finalised two technical regulations for the peat extraction sector that came into force on 1 January 2009. From now on, 90 percent of depleted peatlands must, at the end of their useful life in extraction, be restored as a peatland ecosystem by the extraction operators, while only 10 percent may be used for creation of reservoirs, for forestry or for recreational use. Whatever economic use the peatland is put to, the land-user is mandated to set aside resources for restoring it to a natural condition after use, using the know-how developed by the project. Rehabilitation of worked out peatlands will further reduce annual emissions of CO₂ and extend the habitats of wetland flora and fauna.

“Instead of black desert, there is a green living land. The peatland had suffered from disastrous fires every year, but after project implementation not one fire was recorded on the restored peatland. Local people noticed the recovery of biodiversity: new species of birds and fish appeared. And the most obvious evidence of positive results is the fact that this place became a centre for family outings, for fishing and hunting by local people and for visitors in the winter and summer.”

CHESLAV BORKO, DEPUTY DIRECTOR
OF LIDA FOREST ENTERPRISES
(DOKUDOVSKOE PEATLAND,
LIDA DISTRICT, GRODNO REGION).

The project has also catalysed partnerships with national and international NGOs. With support from the German Government's International Climate Initiative, the partners are investing in further carbon research and peatland rehabilitation and are developing a methodology for trading in carbon emission reductions from

Project facts

Duration: 2005-2010. GEF grant: \$1.0 million. Co-financing: \$2.37 million. For further information, contact Dr Alexander Kozulin: Kozulin@tut.by
Project web site: www.peatlands.by

Belarus peatlands in the voluntary carbon market. These achievements have attracted the attention of neighbouring countries; a similar approach is being adopted in Ukraine, and peatland managers and authorities from the Russian Federation have shown interest in adopting the project's expertise.

Community engagement in peatland restoration activities. ▼
PHOTO: SERGEI ZUYONAK



Protecting stored carbon in the boreal forests of the Komi Republic in the Russian Federation



PROJECT:

Strengthening the protected areas system of the Komi Republic to conserve virgin forest biodiversity in the Pechora River headwaters region (2009-13)

The project's overall objective is to extend the protected area system of the Komi Republic and to improve capacity for its management. In order to address the wider threats to the biodiversity and ecosystems of the region, a special component related to climate change was included in

Pristine forests of the Komi Republic

The Russian Federation includes about 22 percent of the world's forest resources and more than a quarter of the earth's remaining primeval forests. The forests of the Komi Republic represent almost 35 percent of the total pristine area remaining in European Russia; they include major areas of Scandinavian and Russian taiga, which, following centuries of clearance and logging, are now largely confined to areas of north-eastern Russia. The most important forests cover 1.63 million ha in the headwaters of the Pechora River, dominated by mature and over-mature spruce stands. Such is their importance, that Komi's old growth forests are listed as a UNESCO Natural World Heritage Site and are included in WWF's 'Global 200' list of priority ecoregions. As well as supporting typical boreal plant and animal communities in their natural states, these forests are particularly important for conservation of rare bryophytes (mosses and liverworts). Situated close to the Ural Mountains, this is also a region where populations of characteristically Siberian species overlap with European species.

The forests within existing or potential protected areas in Komi store more than 70 million tonnes of carbon and, in an undisturbed state, sequester more than 2.5 million tonnes annually. The mature forests, which store the largest amounts of carbon, are also the most susceptible to impacts of climate change, specifically in the form of fires. Most fires are started by human activity, and, depending on the weather, consume between 1,200 ha and 207,000 ha annually. Up to 94 percent of fires occur in mature spruce stands of high conservation value, and estimates of annual carbon emissions from fires occurring in the Pechora headwaters amount to more than 134,000 tonnes.

the project, with funding from the International Climate Initiative of the German Government. This component is improving infrastructure and building the capacity of local stakeholders in fifteen protected areas in the Komi Republic, enabling them to mitigate more effectively risks

arising from human activity and climate change, and to develop, implement and monitor climate change adaptation measures.

The project has mobilised specialised equipment and scientific expertise to conduct essential re-



Forest in the Komi Republic after fire. PHOTO: SVETLANA ZAGIROVA

Project facts

*Duration: 2009-2013. German Government contribution: € 2.9 million. For further information, contact Ms Svetlana Zagirova (Component Coordinator): zagirova@ib.komisc.ru
Project web site: www.undp-komi.org*

search on carbon fluxes and carbon sequestration potential in pristine forests and peatlands, and on volumes of carbon released during and after forest and peatland fires. At the same time, practical activities have been initiated to reduce the risk of fire and improve capacity for fire prevention and control. These have included training of person-

nel and provision of equipment for fire prevention, detection and control. Most importantly, the results of research are being incorporated into the management plans of protected areas and of managed forests. Priority planned activities include reforestation of degraded areas, extending the rotation period of commercially important tree species in order to increase carbon sequestration and storage, and introduction of multi-species planting into single species coniferous plantations. The overall impact of these actions is subject to an on-going programme of ecological and environmental monitoring.

The fourth assessment report of the Intergovernmental Panel on Climate Change³⁹ states that 'fire protection will be important in boreal forests and includes replacement of highly flammable species, regulation of age-class distribution and widespread management of accumulated fuel. Public education, development of advanced systems of forest inventories, and forest health monitoring are important prerequisites for adaptation and mitigation.' The work of the project has already successfully implemented many of these recommendations.

"Realisation of a 'carbon component' in Iugyd-Va National Park has become one of the most effective and useful aspects of the project, providing essential equipment for fire-prevention, supporting installation of warning notices on tourist routes and distributing leaflets on fire-prevention. Training has been provided for 20 inspectors from the National Park, the Pechoro-Ilychsky Reserve, and also for local residents. The indicative result of this work is the complete absence of forest fires in the National Park in 2011."

TATYANA FOMITCHYOVA. DIRECTOR
OF IUGYD-VA NATIONAL PARK.

³⁹ Intergovernmental Panel on Climate Change. (2007). *Fourth assessment report of the Intergovernmental Panel on Climate Change*. IPCC, Geneva, Switzerland.



Kazakhstan: protecting and enhancing carbon pools in the Altai-Sayan



PROJECT:

Conservation and sustainable use of biodiversity in the Kazakhstani sector of the Altai-Sayan mountain ecoregion (2008-2010)

Based on the principle that efficient protected areas are one of the most appropriate responses to threats to carbon pools in the boreal zone, the project has focused on expanding protected areas in the Altai-Sayan and creating green corridors to connect them. In parallel, the German

Government's International Climate Initiative has supported the development and implementation of carbon mitigation and climate change adaptation activities. The combined effect of these measures has been protection of a significant carbon sink in high conservation value virgin forest areas, estimated at more than 100 million tonnes of carbon stored in dry above-ground biomass.

The benefit in emission reduction is expected to occur mainly as a result of a reduction in fires; consequently the project is focusing on two main aspects of fire-management:

Preventative measures and awareness raising. The project launched a fire-prevention campaign among the local population, designing and delivering fire-safety training courses for

Carbon pools of the Altai-Sayan

At least one third of the Kazakhstani part of the Altai-Sayan ecoregion comprises unique, high conservation value forests, amounting to 15 percent of all national forests. These forests are located mainly in mountainous areas and are classified into two major groups: dark-coniferous, and light (deciduous) larch forests. Climate change is already affecting forest composition; the most noticeable effect has been the accelerated degradation and destruction of the larch forests, which are being naturally replaced by cedar and fir trees. This shift from deciduous (light) to evergreen (dark) coniferous trees has an impact on carbon storage, as the evergreen species store less carbon.

Other changes are also becoming evident. Researchers have reported significant changes in the number and distribution of Siberian fir along the slopes in mountainous depressions. Global warming has also led to upward shifts in altitude of the forest timberline, and an increase of forest cover in the highland areas, leading to losses of high-altitude meadows, steppe and tundra ecosystems.

Warming also aggravates the risk of fires; between 1999 and 2003, approximately 700,000 m³ of wood were burned across 60,000 ha, releasing 3.6 million tonnes of dry above-ground carbon. Fires in the Altai-Sayan tend to burn large areas, due to long delays between the start of a fire and its discovery, and to difficulties in accessing the fires to control them.



different social and age groups. In parallel, forest inspectors and protected area rangers have been trained to work with local people on fire-safe behaviour in forests. The project also supports a network of NGOs and local initiative groups interested in fire prevention activities. As a result, road signs, banners and posters indicating authorised recreational campfire locations have been installed at entrances to forests across the Altai-Sayan.

“Climate change stands at the forefront when planning forest activities. Measures to prevent fires and equipping of protected areas and forestry units with fire appliances and equipment have reduced the number of fires and the risks of their spreading.”

KAIRAT USTEMIROV,
HEAD OF THE DEPARTMENT OF FOREST
AND PROTECTED AREAS,
FORESTRY AND HUNTING COMMITTEE,
MINISTRY OF AGRICULTURE
OF THE REPUBLIC OF KAZAKHSTAN.

◀ *Fire is a major threat in the Altai-Sayan.*
PHOTO: UNDP KAZAKHSTAN ALTAI-SAYAN PROJECT

Project facts

*Duration: 2008-2010. German Government funding: € 1.7 million. For further information, contact Mr Vladimir Cheranev (Project Coordinator): vladimir.cheranev@undp.org
Project web site: www.altai-sayan.kz*

Provision of equipment and infrastructure. The project has ensured delivery of fire fighting machinery and equipment to local fire fighters and protected area patrols. The installation of full radio coverage for the Katon Karagai National Park has been a key element in the fire detection system, with 21 fixed radio stations, 14 radio car stations, and 100 portable radio units for forest inspectors. The project has also identified the best location for a fire-fighting chemical station and a residence house for fire brigades, based on the optimal distance between all protected areas and the time needed to reach the most remote areas in case of fire. Water ponds that can be used for fire-fighting have also been located and mapped in the protected areas.

As well as substantially improving capacity for fire prevention and control, the project has also supported a range of measures to help the Altai-Sayan forests adapt to climate change. These include reforestation with native genetic material best suited to withstand the climatic extremes (storms and droughts) observed in the region in recent years.

Managing vulnerability and developing adaptation strategies for Hungary's Lake Balaton



PROJECT:

Lake Balaton vulnerability assessment, early warning and adaptation strategies (2006-2008)

This project was designed to enable a better understanding of the fragility and vulnerability of Lake Balaton's ecosystems and to introduce measures for mitigation and adaptation. Working through the Lake Balaton Development Coordination Agency for the relatively short period of 30 months, the project included three main programmes:

Research and information dissemination.

Primary research about the conditions and changes in the lake is essential, but it is also important to communicate this information and its significance to decision makers and stakeholders. Bearing this in mind, the project developed not only research tools, such as a customised soil and water assessment tool for the Lake Balaton watershed, but also dissemination mechanisms such as a web-based information sharing tool, an internet map server for the Lake Balaton region and a range of climate and land cover change scenarios for the Lake Balaton watershed. A programme of awareness for the wider public was also initiated.

Capacity development for mitigation and adaptation.

Those directly affected by the changes in the lake need to be able to take the necessary measures to respond. The project promoted diversification of tourist attractions in order to extend the very short summer peak season. It also encouraged better incorporation of tourism into local conservation and development priorities, with the aim of increasing the quality of life of local residents, while alleviating pressures on the lake's vulnerable ecosystems. Small grants were made available to support pilot initiatives for adaptation.

Strengthening the policy framework.

The project helped to incorporate local adaptation measures into the Long-Term Development

Lake Balaton

Located in western Hungary, Lake Balaton is the largest freshwater lake in Europe, but being shallow, it is particularly sensitive to the influence of climate change, amplified by human activity. Both the quantity and the quality of the water in the lake are affected by rising temperatures, fluctuating water levels, decreasing annual precipitation and declining natural sources of water entering the lake. The potential consequences include drying out of the shoreline, algal blooms that can affect fish populations and human health, and permanent damage to the natural ecosystems and biodiversity of the lake, exacerbated by the spread of alien invasive species.

Regional authorities and stakeholders have become concerned about the short- and long-term environmental, economic and health-related consequences of these changes, especially since the area's economy is predominantly based on highly seasonal tourism.



Concept of the Lake Balaton Region (2008-2020) and into the evaluation system for tourism development in the three regions covering the Lake Balaton area. Concrete adaptation measures were also introduced into Hungary's National Climate Change Strategy (2008-2025).

It has been generally acknowledged that the project's duration of just 30 months was too short to address fully the threats to Lake Balaton, but the institutionalisation of many of the results has helped to ensure their long-term impact and sustainability. For example, policies developed for climate change adaptation have been approved at the appropriate level of government (national or regional) and are now guiding the programmes of the relevant authorities. At the municipal and micro-regional levels, sustainable development indicators have now been integrated into local development plans and planning processes.

Project facts

Duration: 2006-2008. GEF funding: \$0.985 million. Co-financing \$3.090 million. For further information, contact Klára Tóthová (Project Backstopping Officer): Klara.tothova@undp.org

◀ *Overgrowth of algae near Balatonszabadi village.*
PHOTO: ZITA EGERSZEGI

4.4 Management of unique and fragile forests: moving from silviculture to ecosystem management and community empowerment

The UNDP project portfolio embraces the region's wide diversity of forest ecosystems, including the old growth deciduous forests of Central Europe, the mixed forests of Eastern Europe, the northern taiga, the scrub forests of the Mediterranean basin, the tugai forests flanking the desert rivers of Central Asia and the fruitwood forests of the subtropical regions.

Several projects have focused on extending national protected areas systems into the forest estate. This has required introduction of many new approaches, including adding protected area management to the responsibilities of existing forestry authorities, transferring forest protected areas to the administration of new authorities and introducing community management of forests.

Adding to the challenge of balancing production with protection has been the growing demand for access to forest resources by local people. Across the region, there is a high dependence on fuel wood for domestic and even industrial use, and as fossil fuels become more expensive, many households switch to using fuel wood (often il-

legally harvested). This leads to habitat degradation and brings people into conflict with forestry and protected area authorities.

These changes and new pressures have led to a number of specific challenges for projects concerned with forest management in the region, most notably reconciling the different approaches adopted by 'traditional' foresters and conservation biologists. There is a need to build the capacity of the forest sector to accept and adopt new approaches and practices and to amend established forestry plans and procedures so as to allow and enable different forms of management and use. Likewise, the conservation sector needs to appreciate better the contributions that foresters can and do make to maintaining important ecosystems and their biodiversity.

Projects across the region are meeting these challenges, from Moldova to Kyrgyzstan, from eastern Russia to the Balkans. The lessons learned so far include the following:

- Forestry agencies have a crucial role to play in forest ecosystem conservation. It is important

to engage them as partners from the earliest stage of project development, and throughout implementation.

- The human, institutional and financial capacities of long-established forest agencies are often much greater than those of younger conservation agencies. Working to reorient this capacity towards conservation and ecosystem based management goals can be much more effective than trying to substitute it.
- Many foresters see themselves as capable and long serving protectors of the forest estate; they can be suspicious of, and resistant to, new approaches. Projects have to be sensitive to this, to respect the experience of the forest sector, while demonstrating the need for change in practical ways.
- Civil society often regards forest agencies as exploiters of natural heritage, and opposes the combination of productive and protective functions in the same organisations. Foresters need to be supported to redefine their image

with the public and to demonstrate their commitment to protection and wise management. The starting point for bringing about many of these changes is through the training and professional development of foresters.

- Forest certification is an excellent tool for reconciling protection with production in a way that is readily understandable and economically beneficial.

- In times of economic hardship, pressure on forest resources increases. Projects have to develop strategies that go beyond pure protection, enabling sustainable management and providing realistic and affordable options and alternatives for forest dependent communities.
- Forests need not only be managed by professional forestry agencies. With support and

training, local communities can be excellent forest stewards, especially when they are dependent on a flow of resources from the forests.

- Non-wood forest products, tourism and ecosystem services are becoming increasingly important for forest economies. The most forward thinking forestry authorities are re-defining their role, moving from being protectors and producers to being managers of multifunctional forest landscapes and ecosystems, that generate a range of environmental, social and economic benefits.

The three projects highlighted have addressed some of these challenges in different ways in Turkey, Uzbekistan and Bulgaria.



◀ *Forests in Küre Mountains National Park buffer zone, Turkey.*
PHOTO : MUSTAFA DEMIRBAS

Changing foresters' perspectives in Turkey



PROJECT:

Enhancing coverage and management effectiveness of the subsystem of forest protected areas in Turkey's national system of protected areas (2008-2012)

The project started in 2008 and is implemented jointly with the General Directorate of Nature Conservation and National Parks and the General Directorate of Forestry within the Ministry of Forestry and Water Affairs, together with WWF Turkey as an NGO partner. Building on the foundation of an earlier GEF financed project, this project has focused on establishing the basic regulatory and operational mechanisms required to ensure conservation or sus-

tainable management of 600,000 ha of globally significant old-growth forests and grasslands across nine forest hotspots. The starting point has been to develop models of good practice in the Küre Mountains National Park and its buffer zone.

By 2011, all of the targeted 600,000 ha had either been gazetted as protected areas or brought

under ecosystem-based, multifunctional forest management. Protected area planning and management standards have been developed by the project, along with guidance for sustainable forest management within protected areas, helping to ensure the integration of conservation principles and protected area approaches into forest management planning.

Forest protected areas of Turkey

Turkey's diverse natural ecosystems, its geological history and its geographical position between three continents have given rise to an astonishing plant and animal diversity. More than 9,000 plant species are present; more than 1,800 of these are rare and one third are unique to Turkey. Three WWF 'Global 200' ecoregions and three global biodiversity hotspots are located in the country, and the national network of protected areas comprises more than 4.1 million ha, or about 5 percent of the total territory of Turkey.

The extent and diversity of Turkey's natural forest ecosystems have, until recently, received disproportionately little attention. Turkey's forests range from lowland alluvial and coastal woodlands, through Mediterranean *maquis* to high mountain forests, covering altogether 21.2 million ha (27.8 percent of the country). However less than 4 percent of the national forest estate is officially protected, and nearly half of Turkey's forests are degraded as a result of unsustainable practices, such as encroachment, overgrazing, and illegal logging. The root causes of these threats include poverty in forest villages and a lack of clear land tenure, resulting in disputes among stakeholders. There is a need to ensure not just that the critical forest hotspots are included in the national protected area system, but also that the management of sensitive and vulnerable forests can address economic, social and environmental priorities.

The project has piloted several innovative approaches in the buffer zone of Küre Mountains National Park. All seventeen forest sub-districts have adopted the new multifunctional forest management planning approach, with a stronger focus on biodiversity and ecosystem conservation. A 'pilot applications programme' is enabling NGOs to work on ecotourism, awareness raising, natural resource management and marketing of local products. The Ministry of Forestry and Water Affairs has supported forest villagers to install over 300 solar water heaters, reducing demand for fuel wood, while over 15,000 trees have been planted in a programme of forest rehabilitation.

Timber production in the sensitive landscape of Küre Mountains National Park.
PHOTO: MICHAEL R APPLETON



"Turkey's forestry sector has started to integrate biodiversity issues into ecosystem-based multifunctional forest plans. 17 forest sub-districts in the Küre Mountains National Park buffer zone have played an important role in this national process. More than 80 percent of the buffer zone is covered by forests, and this area has been planned for conservation of species, ecosystems and landscapes to support national park values. Now, there are no intensive forestry practices in this buffer zone."

MR RAMAZAN DIKYAR,
FOREST ENGINEER, MONITORING AND
CONTROL CHIEF ENGINEER,
GENERAL DIRECTORATE OF FORESTRY.

Good governance has also been an important element of the project. The Küre Mountains National Park Directorate has been established as one of ten such directorates in Turkey, working in close collaboration with local stakeholders and national and local NGOs to ensure a high degree of

Project facts

Duration: 2008-2012. GEF grant: \$1.0 million. Co-financing: \$1.65 million. For further information, contact Mr Yildiray Lise (Deputy Project Manager): yildiray.lise@undp.org
Project web site: www.kdmp.gov.tr

participation. The official forest management planning process for Turkey has also been revised to include a requirement for formal public consultation. As a result of these efforts, the Küre Mountains National Park became Turkey's first member of the PAN Parks, which is a network established to protect Europe's wilderness, the continent's most undisturbed areas of nature. Furthermore, the project was recognized as one of the 25 best practices in Turkey in the area of sustainable development and green economy presented at the Rio+20 United Nations Sustainable Development Conference in June 2012.

Overall, the project is combining work to strengthen the basic functions of the National Park (nature protection, sustainable tourism, awareness raising) with innovative efforts to harmonise protected area approaches with forestry. The result should be a model landscape where all sectors combine to protect Turkey's forest heritage. The next step is to transfer this experience to Turkey's other forest hotspots.

A new Biosphere Reserve and local communities are two elements of success in conserving Uzbekistan's tugai forests



PROJECT:

Conservation of tugai forest and strengthening the protected areas system in the Amu Darya Delta of Karakalpakstan (2005-2010)

The overall objective of this project was to conserve tugai forest and to include it in Uzbekistan's system of protected areas. Specifically, the project

focused on extending protected areas, demonstrating a new multi-zoned approach to protected area planning, raising awareness about the value of tugai, and involving local communities in conservation of the forest.

When the project started in 2005, protecting the lower Amu Darya Delta was a priority, but it was

clear that simply enlarging existing strict protected areas would not work. A solution was required that would stop ecosystem degradation by addressing the underlying causes of that degradation. Thus, the idea of a Biosphere Reserve emerged. By early 2007, the project team had managed to transform the prevailing local misunderstanding and even hostility towards the proposed Biosphere Reserve

Tugai forest

Almost 6 percent of Uzbekistan is included in the national system of protected areas, but certain ecosystems are significantly underrepresented, most notably the tugai forests. 'Tugai' is the term used across Central Asia for the unique ecosystem that flanks rivers in the region's arid areas. The tugai ecosystem includes reeds, river-side gallery forests, drought-resistant shrubs and associated grassland and desert landscapes.

Tugai forests were formerly widespread in Central Asia, especially along the Amu Darya River. Today, only 10 percent remains (in highly fragmented form) of the original tugai of the Amu Darya Delta in the southern Aral Sea area. The reasons for this decline include changes in the hydrological regime, reduced water quantities, increased salinity, and overexploitation and degradation of the forests through grazing and wood cutting for fuel and construction. The most extensive area of tugai remaining today is about 300 km², around 75 percent of the total remaining in Uzbekistan and 20 percent of what is left in the whole of Central Asia.

Tugai is a unique and spectacular ecosystem, supporting a wealth of biodiversity in 'linear oases' crossing the arid regions of Central Asia that, if well managed, can provide essential resources for the communities of the region.

to widespread support. The project helped in the complex process of research, planning and negotiation to define clear, pragmatic boundaries and zones for the proposed reserve area, and to prepare management and business plans. In 2010, the Council of Ministers of Karakalpakstan approved allocation of 68,718 ha of land for the Lower Amu Darya Biosphere Reserve, and in 2011, the Cabinet of Ministers of Uzbekistan formally approved its establishment.

Establishing the Biosphere Reserve was just the start, however; practical measures were needed to support the day-to-day needs of local people. In order to reduce the demand for fuel wood, the

project established six gas dissemination points, which have benefited 86 households, 26 of which did not previously have any gas supply. As a result, more than 16 ha of forest is conserved each winter. While supplying gas might temporarily meet the community's needs, it does not constitute a long-term approach. In four districts, therefore, the project has facilitated 20 tenant farmers to rent 91 ha of degraded land from the forest estate in order to restore the forests and to generate income. The farmers practice agroforestry, using the land between the forest trees they have planted to grow food for their families and for the market. So far, 71 ha of forest have been restored in this way. The project has also piloted installation of domes-

Project facts

Duration: 2005-2010. GEF grant: \$1.0 million. Co-financing: \$1.06 million. For further information, contact Mr Khalilulla Sherimbetov (Project Co-ordinator): khalilulla.sherimbetov@undpaffiliates.org

tic insulation, improvements in management of grazing animals, and measures to increase the efficiency of sustainable agriculture.

Through the project, communities and local authorities have learned that effective forest conservation requires combining protective measures with a range of innovative approaches to engage and empower local people, whose livelihoods for today and tomorrow depend on the forests.

“Now I see the importance of national protected areas in nature conservation. The Biosphere Reserve is also promoting economic well-being.”

MR.D.KHALMURATOV, MINISTER
OF JUSTICE OF THE REPUBLIC
OF KARAKALPAKSTAN.

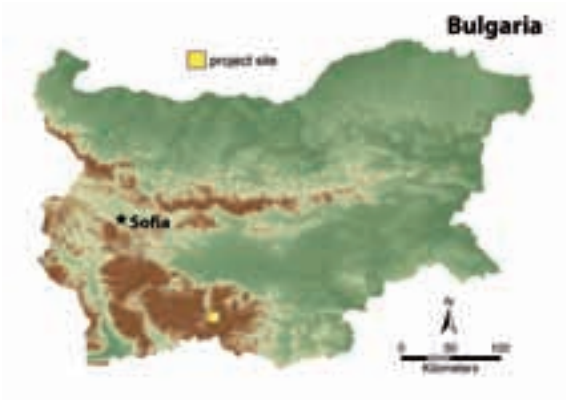


Schoolchildren planting trees in the Biosphere Reserve. PHOTO: UNDP UZBEKISTAN



Bukhara deer in the tugai forest.
PHOTO: PHILLIP EDWARDS

Integrating forestry with conservation and rural development in Bulgaria's mountain landscapes



PROJECT:

Conservation of globally significant biodiversity in the landscape of Bulgaria's Rhodope Mountains (2004-2009)

The overall objective of the project was the conservation and sustainable use of biological diversity in the Rhodope Mountains. Achieving this has involved establishing innovative partnerships of foresters, farmers, civil society organisa-

The Rhodope Mountains

The Rhodope Mountains of southern Bulgaria cover more than 12,000 km². More than 70 percent of the western Rhodope is mainly coniferous forest, together with high mountain meadows and pastures. By contrast, the eastern Rhodope is generally lower in altitude, the mainly deciduous forests cover around one third of the area, and around half the forests are plantations. The remaining landscapes of the eastern Rhodope comprise large and diverse grassland, farmland and steppe areas, many of them under centuries-old traditional management.

As well as being rich in traditional culture, the Rhodope Mountains are also one of Bulgaria's most important regions for biodiversity. The mountains support more than 25 distinct natural habitats, have a very high level of endemism (especially of plants and invertebrates), and support large numbers of vertebrate species, most notably birds and bats. Despite this, the coverage of protected areas in the mountains was (before the project) less than one quarter of the country's average.

While traditional management practices have helped to maintain the values of Rhodope in the past, growing pressures and new threats have started to endanger the mountains' unique nature and culture. The most significant of these are:

- habitat fragmentation and deterioration of the habitat mosaic of forest, farmland and meadows;
- unsustainable use of natural resources (over-harvesting of medicinal plants, inappropriate tourism, seasonal use of fire, illegal logging, modernisation and intensification of agriculture);
- loss of genetic diversity and abandonment of local plant varieties and domestic animal breeds; and
- inadequate, small, isolated protected areas.

The challenge faced in protecting and sustaining the natural and cultural landscapes of the Rhodope Mountains is to introduce new approaches that can be readily accepted and assimilated by the diverse range of stakeholders in the region, from foresters to farmers, large agencies to small communities.

tions and the private sector, together with development of effective conservation tools and the promotion of sustainable livelihoods. The project assisted twelve municipalities to develop 'Programmes for the Protection of the Environment', through which zoning and biodiversity friendly management have been introduced across more than 800,000 ha of land.

Critical to the success of the project has been the engagement from the start of the forest sector. Foresters were involved in the processes of data gathering, site prioritisation and identification of high conservation value forests. This approach not only recognised and made use the deep knowledge of the area possessed by the foresters, it also helped to increase their awareness and knowledge, building their capacity for improved future management of the forest estate.

The project has also pioneered forest certification as an important tool for encouraging the adoption of nature-friendly, economically viable and socially responsible forestry practices in Bulgaria. In the course of the project, over 143,000 ha in seven forestry units in the Rhodope region have been certified under the Forestry Stewardship Council standards, triggering a nationwide interest in certification. Interviews with senior forestry managers during the project's final evaluation revealed that the Forestry Administration sees certification as 'the future',

and that designation and management of high conservation value forests is a key part of the certification process.

The responses of foresters to the work of the project are testament to its accomplishments. Several have stated that the certification process had given them greater interest in biodiversity and that they increasingly see themselves as 'stewards of nature.' Some have now incorporated into their work plans the project's monitoring programmes for threatened animals and plants. Foresters have also noticed an increased respect for their work, both from their professional colleagues and from the general public. This has led to a greater sense of pride, increasing levels of personal motivation.

Project facts

*Duration: 2004-2009. GEF grant: \$3.805 million. Co-financing: \$14.773 million. For further information, contact Alexander Bardarov (Rhodope Project Association): alexbardarov@hotmail.com
Web site: www.rodope.org*

The evidence is that the project has had a significant impact on attitudes and practices within the forestry sector in the Rhodope region. Forest certification and sustainable management of forests, including conservation of forest biodiversity, have been internalized within forestry programmes and practices in a way that should be sustainable over the long term.



Biodiversity field surveys in the western Rhodope. PHOTO: RHODOPE PROJECT

4.5 Conserving agrobiodiversity, agro-ecosystems and traditional fisheries

Agrobiodiversity includes all components of biological diversity relevant to food and agriculture, including both the diverse species of plant and animal used in agriculture and the genes that those species contain. Agrobiodiversity is important in the Europe and CIS region for many reasons. The wild relatives of many of the world's most important crop plants originate from Central Asia and the Caucasus, and the local races used by farmers in those regions are among the first domesticated species. Such ancient varieties can be important for local livelihoods and food security, being better suited than commercial varieties to specific local environmental conditions, and containing genes that may convey resistance to pests and diseases. Such properties may be of great importance too for modern agricultural plant and animal breeding, increasing yields, helping global food security, and possibly generating revenue for the communities that have conserved the genes.

In much of Eurasia, human activity over thousands of years has gently modified natural ecosystems so that they are agriculturally productive, while at the same time supporting and even enhancing their natural biodiversity. Typical examples of such agro-

ecosystems include meadows managed through seasonal haymaking and grazing in mountain areas, wet grazing meadows in the lowlands, and organically farmed cultivated land on agricultural plains. In these areas, avoidance of monocultures, commercial species and agrochemicals, combined with harvesting regimes that respect nesting and flowering seasons, have all served to generate productive habitats, rich in plants, birds and insects. Agricultural modernisation and intensification are now threatening many agro-ecosystems and the wildlife and cultures they sustain; urgent action is required to preserve these traditional, nature friendly forms of agriculture.

Because the region is the origin of so many important agricultural crops and contains extensive agro-ecosystems of such high conservation value, UNDP and its partners have developed a suite of GEF projects to protect agricultural heritage and its associated biodiversity, cultures and livelihoods. The regional programme is also pleased to have supported two projects specifically aimed at fisheries conservation.

These projects have learned some valuable lessons from their experience so far:

- Traditionally managed farmland is one of the most important ecosystems, particularly in the more populated west of the region, where areas of natural wilderness are much smaller and scarcer. It provides particular opportunities for protecting biodiversity, maintaining local cultures and improving livelihoods.
- Farmers and fishers are a valuable repository of knowledge about agrobiodiversity, traditional management and wildlife. Many of them are true nature lovers, possessing a deep understanding of the ecosystems they depend on and of the importance of sustainability. Given the right opportunities and incentives, local people are willing participants in maintaining biodiversity-friendly traditional management regimes. Projects are much more effective when these local people are fully involved from the start.
- Projects can provide a much-needed link between farmers, fishers and responsible authorities, promoting mutual understanding and linking policy to practice on the ground and the realities of day-to-day rural livelihoods.

- Using traditional crop and livestock varieties can not only increase yields and incomes, it can also build capacity and local pride within rural communities.
- Environmental problems faced by fisheries cannot be solved at the site level alone; they require collaborative, catchment-scale approaches.

The six case studies in this section provide examples of projects that are rescuing the ancestors of the apple in Central Asia, reinstating the use of traditional crop varieties in the Caucasus, promoting biodiversity friendly management of important agro-ecosystems in Europe and restoring an economically important aquatic ecosystem in Kyrgyzstan.



*Mixed agricultural and forest landscape
in the Carpathian Mountains of the Czech Republic.* ►
PHOTO: UNDP-GEF CZECH GRASSLANDS PROJECT

Forgotten crop varieties and landraces make a comeback in Georgia



PROJECT:

Recovery, conservation and sustainable use of Georgia's agrobiodiversity (2004-2010)

With support from the project (executed by 'Elkana', the local biological farming association), Georgian farmers are reviving their country's agrobiodiversity by reclaiming forgotten crop varieties and landraces, and diversifying their agricultural production. The project is improving access to seed stock and planting material, providing extension services to farmers, and facilitating experience-sharing among farmers, research stations, and other stakeholders.

Prior to the project, farmers had virtually abandoned use of traditional native crops. In order to encourage them to resume cultivation of local varieties and landraces, the project established a seed multiplication system. As a result, 28 landraces and varieties of legumes, cereals and fruits were being used for subsistence production by 2009, and seven landraces were in commercial use. Today, 189 households are cultivating local landraces and varieties, and more than 80 percent of these have reported higher legume crop diversity, as well as

improvement of the family diet. These crops have also demonstrated a much higher resistance to drought, pests and harsh winters.

The revived native legume crops attract a 10 percent price premium compared to common beans, and 11 farmers and three farmers' cooperatives have confirmed higher incomes from trading them; the volume of sales has doubled each of the last three years. Farmers also benefit from having to spend far less on chemical fertilizers.

Georgia's agrobiodiversity

Georgia's agriculture can be traced back to seven thousand years ago, when the first Georgian tribes began to domesticate cereals, legumes and fruit species. With a relatively small area of 69,700 km², Georgia is home to more than 350 local species of grain crop, 500 local varieties of grape and more than 100 species of fruit trees, nuts and wild berries.

Before the early twentieth century, Georgia's agricultural production was diversified, but during the Soviet times most families and collective farms grew mainly introduced varieties (thereby decreasing on-farm diversity), while agricultural research centres cultivated local landraces (varieties that have developed largely by natural processes). When financial support from the Soviet Union ceased, the loss of agrobiodiversity intensified, as valuable collections and stocks of landraces began to deteriorate when the agricultural research centres and extension services that promoted them collapsed. At the same time, modernization of agricultural production led to increased use of introduced commercial varieties and of agrochemicals. By the mid-1990s, many local varieties were no longer available for planting, and the research centres lacked the capacity to assist farmers to reintroduce them.

Children dancing at the Bread Festival. PHOTO: © ELKANA NGO, GEORGIA.



"I have been receiving the project's help since 2004, when Elkana invited me to the farmers' association for native crops. Ever since then, my harvests have been good, I make better profits, and every year I try to sow more and have greater yields."

"Everyone has become interested. All my neighbours are cultivating crops promoted by this project."

"It seems Georgia has a market for it, and it makes sense to sow more. Products from native crops are wholesome, natural, and delicious. We advise everyone to grow these crops and to cook different and wholesome dishes with them."

FARMERS FROM THE ELKANA ASSOCIATION REFLECT ABOUT THE PROJECT (QUOTES TAKEN FROM THE FILM 'RESTORING GEORGIA'S AGROBIODIVERSITY').

Replication of the accomplishments of the project speaks for its success. Seed material nurtured through the project is now being sought by farmers from outside the demonstration area. In 2011, five regions (Kakheti, Kvemo Kartli, Imereti, Svaneti and Racha) bought seed material from Elkana. Kakhetian farmers grow the crops mainly for their own consumption, while farmers from Kvemo Kartli sell harvests both locally and in the neighbouring country of Azerbaijan. Restoration of the wheat landrace *Akhaltshikhis Tsiteli Doli* has encouraged local farmers to establish a Bread Festival in the city of Akhaltsikhe, Samtskhe-Javakheti. The festivals held in the autumns of 2010 and 2011 have grown into real celebrations of local traditions, bread and food.

Agrobiodiversity is often overlooked when evaluating the importance of biodiversity, but farmers in Georgia now know otherwise! The trust in native landraces and varieties, and the ever-evolving capacity of the farmers to innovate and adapt, once seemingly lost, are making a comeback, and farmers are demonstrating a new maxim for the management of agricultural species diversity: 'sustainably use it... or lose it'.

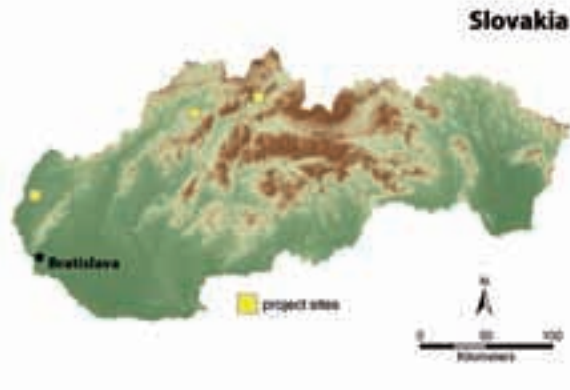
Traditional products packaged for the market. ►
PHOTO: ELKANA NGO, GEORGIA.

Project facts

*Duration: 2004-2010. GEF grant: \$0.99 million. Co-financing: \$1.72 million. For further information, contact Ms Mariam Jorjadze (Project Coordinator and Head of Elkana): director@elkana.org.ge
Project web site: www.elkana.org.ge/biodiversity/index.htm*



Sound science and access to finance are the keys to sustainability in Slovakia's calcareous fens



PROJECT:

Conservation, restoration and wise use of calcareous fens (2004-2010)

While sustainable grazing is beneficial for the maintenance of Slovakia's calcareous fens, other agricultural practices such as arable farming lead to their degradation. The future of these fens depends on their scientifically-based and sustainably financed management. Bringing that

scenario into reality is the objective of this project, implemented by the Daphne Research Institute in cooperation with Slovakia's Ministries of Environment and of Agriculture. With a total area of around 300 ha, the project's three demonstration sites represent about 10 percent of the remaining peatlands in Slovakia.

The underlying principle of the project is participation. Management plans for the demonstra-

tion areas have been prepared jointly with local farmers, prescribing the conservation actions required to maintain the fen ecosystem. For each action, the project has conducted thorough research and prepared detailed methodological guidance.

The project also helps farmers to identify sources of financial support. In theory, funding is available through the EU agrienvironmental scheme

Calcareous fens in Slovakia

Calcareous fens are rare and distinctive wetland communities that form on peat, but whose water supply comes from cold, oxygen-poor groundwater, rich in calcium carbonate. This environment supports plant communities dominated by calcium-loving species, utterly different from the acid tolerant communities more usually found on peatlands. Calcareous fens in Eastern Europe support an exceptional mixture of communities from four biogeographical zones. The Carpathian zone is characterised by the presence of the rare species, *Swertia perennis* and *Primula farinosa*; the boreal zone supports a wide variety of relict species; the oceanic zone contains threatened plant species such as *Juncus bulbosus* and *Rhynchospora alba*; and the Pannonian zone is represented by endemic plants such as *Cirsium brachycephalum*.

At the beginning of the twentieth century, wetlands covered about 20,000 ha in Slovakia; by the early 1990s, approximately 90 percent had been lost as a result of human activities, mostly drainage for agriculture. Among the various types of peatland, the rich calcareous fens are under the most pressure. Except for the Šúr Nature Reserve, with an area of 350 ha, all calcareous fens have been drained and converted to arable land.



Belianske Luky fen after restoration. PHOTO: TOMÁŠ DRAŽIL

and Natura 2000 programme, but at the start of the project calcareous fens were not eligible for such support. Following the intervention of the project, the European Commission has officially acknowledged eligibility for support of measures for management of semi-natural and natural grasslands under Slovakia's rural development plan. To support this, the project has developed rules and schemes of payments to conserve the fenlands.

In order to build capacity for fenland restoration, seven seminars for farmers have been organized, along with demonstration activities on 139.5 ha of biodiversity-rich fens. The conservation status of these areas has now substantially increased; 95.4 ha have undergone active restoration, with the groundwater table stabilized in 80 percent of the restored sites.

So far, agrienvironmental payments have been applied to more than 450 ha of fens (14.6 percent of the total). Of the 609 peatland sites now included in the Natura 2000 network, 126 are being managed by local farmers within agrienvironmental schemes, 134 are managed by the State Nature Conservancy and/or conservation projects, and 39 can be maintained without any management. In total therefore, nearly half of Slovakia's Natura 2000 peatland sites are now being sensitively and sustainably managed and maintained.

“A complex of more than 90 ha of unique fen grasslands in the Belianske meadows had been saved from peat extraction, but since then had been neglected, and species richness had declined. Within the project, the Daphne Research Institute, in cooperation with the State Nature Conservancy, managed to find a private farmer willing to invest time and resources in the rehabilitation and maintenance of the grasslands. This commendable act has restored Belianske meadow, which just two years ago was overgrown with rushes and shrubs, as a pearl of nature. Now the site is admired by botanists from Slovakia and across Europe.”

MILAN BARLOG,
BOTANIST FROM THE ADMINISTRATION
OF SLOVENSKÝ RAJ
(SLOVAK PARADISE) NATIONAL PARK.

Project facts

Duration: 2004–2010. GEF grant: \$1.0 million. Co-financing: \$1.46 million. For further information, contact Ms Viera Šefferová: stanova@daphne.sk

Special tractors that do not compress peat are needed to mow and mulch the fens. PHOTO: TOMÁŠ DRAŽIL ▼



Czech Republic: demonstrating agrienvironmental and marketing models to support sustainable grassland management in the context of the European Union



PROJECT:

Conservation of biological diversity of Carpathian mountain grasslands in the Czech Republic through targeted application of new EU funding mechanisms (2004-2010)

This project focused on two priority mountain grassland locations to pilot landowner-based grassland management approaches that would ultimately become eligible for EU support. The starting point was to develop the policies and standards necessary to ensure that grassland management could be included in the Czech Republic's agrienvironmental scheme. The project developed five regulations, all of which were successfully adopted by the Government. The team also developed practical guidance for grassland management and introduced a sophisticated system to monitor the ecological stability of grasslands within the scheme. By the end of the project, an impressive total of 327 farmers had applied for the available grassland subsidies.

The project has also provided support for 134 farms to adopt organic farming methods. In order to support the marketing of products from the sustainably managed grasslands, three regional product brands and logos were launched ('Tradition of the White Carpathians', 'Produced in the Beskydy Mountains', and 'Sheep from the Moravian Carpathians'). Products marketed under these brands include sheep and goat meat and milk products, organic agricultural produce and traditional handicrafts. Eight other regions have followed the project's example and registered similar product trademarks.

Temperate semi-natural grasslands in the Carpathian Mountains

Species composition and diversity in the mountain grasslands of the Carpathians is a direct result of the traditional agricultural practices of grazing and mowing. Abandoning of traditional management has resulted in invasion by dominant species and succession of grasslands to shrublands, leading to losses of important plant and animal communities. These changes have been driven by social and economic factors, which have caused reduced summer grazing of upland pastures by sheep and goats, and led to intensification of management of lowland meadows through application of mineral fertilizers and reseeding with mono-specific agricultural grasses.

While the European Union provides funding for agrienvironmental measures, selecting eligible biotopes, setting the standards and rules, and building capacities of farmers to apply them are all left to the discretion of individual Member States. In the early 2000s none of the newly acceded countries, including the Czech Republic, were able to meet the required criteria for successful management of grasslands through these agrienvironmental schemes.

“Most farmers here do not fully understand the purpose of the agrienvironmental schemes, and consider them only as simple subsidies for farm management. Farm plans and individual counselling represent indispensable tools for awareness raising and for improving the effectiveness and efficiency of implementing the landscape and environmental components of the scheme. Agrienvironmental measures, introduced into agricultural policy, have now led to the maintenance and improvement of biodiversity in the agricultural landscape outside the protected areas.”

BOŘIVOJ ŠARAPATKA,
FACULTY OF ENVIRONMENTAL
SCIENCES, PALACKÉHO UNIVERSITY,
OLOMOUC, CZECH REPUBLIC.

Project facts

*Duration: 2004–2010. GEF grant: \$0.99 million.
Co-financing: \$9.39 million. For further information, contact Ms Klára Tóthová (UNDP-GEF Focal Point): klara.tothova@undp.org
Project web site: www.foa.cz*

For over 1,500 ha of grassland that required particularly strict protection, the project has ensured their inclusion in the country's protected area system, while a further 570 ha of degraded land have been restored to the status of biodiversity-rich grasslands. Cumulatively, the work of the project has led to increases in the populations of most of the grassland indicator species in the country.



Goat's cheese production course supported by the project. ►
PHOTO: CZECH REPUBLIC GRASSLAND PROJECT

Developing local capacities for agrienvironmental measures in biodiversity rich grasslands in Bulgaria



PROJECT:

Conservation of globally important biodiversity in high nature value semi-natural grasslands through support for the traditional local economy (2007-2012)

The project was designed to develop local and national capacities for developing and managing EU supported agrienvironmental measures

High nature value grasslands in Bulgaria

Semi-natural grasslands are some of the most valuable ecosystems in Bulgaria's agricultural landscapes. As a result of long-term co-existence with farmers, such ecosystems are rich in species and characteristic of their biogeographical region. Bulgarian grasslands exhibit high floristic diversity, and provide important habitats for many animal communities, notably butterflies and breeding birds. Available estimates indicate a decline in the area of semi-natural pastures and meadows in Bulgaria from 1.8 million ha in the early twentieth century to 1.2 million ha in the 1960s and less than 500,000 ha in the late 1990s. Recent estimates suggest that a total of 350,000 ha of semi-natural grassland habitats in Bulgaria are important for biodiversity. These 'high nature value' grasslands are home to a remarkable biodiversity that includes over 50 percent of the flora of Bulgaria and 198 species of plants of international conservation importance.

In the early 2000s, these remaining grasslands were in danger of disappearing as a result of privatization and land reform, following the collapse of communism and the transition towards a market-based economy. Abandonment of farming, over-grazing, or even simple changes in cutting regimes, all reduce grassland biodiversity through shrub encroachment or the increased dominance of competitive grassland species. Although this was the period of Bulgaria's accession to the European Union, whose agrienvironmental instruments cover sustainable management of species rich grasslands, Bulgaria lacked the capacity to benefit from these measures.

for Bulgaria's valuable semi-natural grasslands. In some of the countries implementing EU agrienvironmental policies, there has been a lack of mediation between farmers on the ground and national Ministries of Agriculture (as managers of the EU funds). The project set up an innovative mechanism to address this potential weakness. It established three-person, NGO-based mobile teams to advise farmers on the complexities of

the agrienvironmental measures, stimulate their interest in applying for the available subsidies, advise local extension services, help farmers to apply for the scheme, and provide support and advocacy if their applications are rejected.

The experts in the mobile teams have also been instrumental in developing both government ordinances and the content of the grassland meas-

ures included within the national agrienvironmental scheme. By 2011, 20 farmers had applied to the national scheme for agrienvironmental subsidies for sustainable grassland management. The project is now providing support to ensure that their payments are delivered correctly and promptly. The project team is also working to ensure the implementation in Bulgaria of the Europe-wide Natura 2000 network of conservation areas, and has successfully proposed a measure whereby grassland managers in Natura 2000 sites are compensated for bans on removal of landscape features, mowing, and the use of fertilizers.

The project does not just limit its efforts to agrienvironmental measures; in biodiversity-rich areas it is establishing local action groups to prepare local sustainable development strategies and investment proposals, organizing local brand food festivals, and arranging study tours for farmers.

It is still too early to determine the full ecological impact of these measures, but, encouragingly, monitoring of indicators in the pilot areas has shown no further reductions in grassland biodiversity.

Sheep are important for maintaining the mountain grasslands. ►

PHOTO: G. POPGEORGIEV

“The project provided funds and opportunities to continue doing what we could do best - breed livestock - and has, at the same time, taught us how to take care of the grasslands that we depend on.”

STOYAN STOYANOV,
FARMER IN THE PONOR PILOT AREA.

Project facts

Duration: 2007-2012. GEF grant: \$1.0 million. Co-financing: \$1.22 million. For further information, contact Ms Miroslava Dikova (Project Coordinator): miroslavadikova@yahoo.com
Project web site: www.bspb-grasslands.org



Goats are used for grazing too.
PHOTO: G. POPGEORGIEV



Securing the future of Kazakhstan's agrobiodiversity



PROJECT:

In-situ conservation of Kazakhstan's mountain agrobiodiversity (2005-2012)

In 2003, UNDP and the Kazakh Government undertook a set of coordinated activities to reverse the degradation of wild fruit diversity. Working at two demonstration areas in the Tien-Shan Mountains, the project was established to secure protection of key genetic reserves, to trial wild fruit conservation tools, and to identify means for alternative income generation by local people in order to reduce the pressure on wild fruit forests.

Wild fruit diversity in Kazakhstan

Kazakhstan is the world's centre of wild apple diversity. It is believed that the cultivated apple (*Malus domestica*) arose in the Tien-Shan mountains of Kazakhstan and China from the wild apple (*Malus sieversii*), which has many of the characteristics (size, colour, sweetness) valued by growers and consumers alike. Environmental conditions in the region are extremely favourable, and whole valleys are still forested with apple trees, while varied microclimates and ecological niches allow for wide diversification of wild forms. There is a theory that natural selection and distribution of the largest and sweetest fruits was driven by bears and wild ungulates, creating the basis for the varieties preferred by humans.

From 1960 to 2005, the area of wild fruit forests in the Zailiyskiy Alatau region declined by 70 percent and, in the more remote Zhongar-Alatau forests, by 50 percent. Former wild fruit forests were overgrazed, burnt by farmers and overexploited (fruit was collected for food, trees for fuel wood). Furthermore, pollination of the wild varieties by introduced varieties led to the accumulation of cultivated genes and a loss of natural genetic variation. This dramatically reduced the resistance of native varieties to prevailing natural conditions and to the impact of pests and diseases, and diminished the ability of wild varieties to regenerate naturally.

A fundamental strategy for conserving agrobiodiversity is to secure formal protection for areas that are important genetic reserves. Accordingly, the project conducted an inventory of wild fruit forests within the two demonstration areas, and proposed the expansion by 35,000 ha of the Zailiyskiy Alatau Specially Protected Area and establishment of Zhongar-Alatau National Park (356,000 ha). Within these protected areas, the team has identified and established seven

special zones for the strict protection of genetic reserves of wild apples and apricots. These zones have been officially certified by the Research and Technical Council of the Forestry and Hunting Committee of the Ministry of Agriculture of Kazakhstan.

New technology has an important role to play in maintaining and increasing wild fruit diversity. The project has established and equipped

scientific departments at the two protected areas, which are conducting research into micropropagation of important varieties and maintaining gene banks of wild and cultivated fruit diversity.

Diverting people from destructive use of wild fruit forests is also essential for ensuring their

long-term conservation. Working with the local communities, the project team has promoted traditional beekeeping as a possible alternative, providing a honey processing facility, market studies and training for bee keepers. Support has also been provided for ecological tourism and for improving the efficiency and sustainability of traditional farming practices.

Project facts

*Duration: 2005-2012. GEF grant: \$3.0 million. Co-financing: \$19.59 million. For further information, contact Ms Kuralay Karibayeva (Project Manager): kuralay.karibayeva@undp.org
Project web sites: www.undp.kz; www.minagri.kz; www.fhc.kz*

"The project helped us to realise the importance of working to preserve the genetic diversity of wild fruit forests. We are grateful for its help in creating Zhongar-Alatau National Park, which gives us the opportunity to improve the protection of valuable wild fruit forests, our national heritage."

SAYAT IGEMBAEV,
DEPUTY GENERAL DIRECTOR
OF ZHONGAR-ALATAU NATIONAL PARK.

◀ Seminar on conservation management in Zhongar-Alatau Park.
PHOTO: LINA VALDSHMIT



Kyrgyzstan: restoring a native species fishery through sound ecological management and alternative income generation



PROJECT:

Strengthening the policy and regulatory framework for mainstreaming biodiversity into the fishery sector (2008-2013)

Lake Issyk-Kul

At 1,608 metres above sea level, Lake Issyk-Kul in Kyrgyzstan is the second largest high altitude lake in the world. Issyk-Kul is both a Ramsar Site (Wetland of International Importance) and a UNESCO Biosphere Reserve. In recent years, catches of all species of fish from the lake have declined markedly, due to a combination of over-fishing, predation by two introduced species, and the cessation of restocking of the lake with juvenile fish from hatcheries. At least four commercially targeted endemic fish species are sufficiently threatened to be included in the Red Book of the Kyrgyz Republic. Seven other endemic species are almost certainly threatened, either as by-catch or as a result of changes to the structure and balance of the fish population within the lake, caused by poor fishery management.

The project is addressing the threats to the native fish fauna of Lake Issyk-Kul through a set of coordinated activities. In the first year of operation, the project team helped the authorities to implement a fishing moratorium on Lake Issyk-Kul, lasting until 2013. During the moratorium, a programme of scientific research has gathered



Sanitary fishing activities to remove invasive species.
PHOTO: AZAT ALAMANOV

data on the population trends and habitat requirements of the four most threatened endemic fish species, as well as on the impact of introduced species. This work has helped to define maximum allowable catches for the commercial fishery in the lake.

The project team is also working through the Fisheries Advisory Committee to enable local

communities to participate in the elaboration of a biodiversity-friendly fishery management regime. In order to reduce overfishing, the project has pioneered issuance of long-term fishing rights per user/fisher, and successfully promoted aquaculture in pond fisheries. A programme of restocking with larvae of threatened endemics is now underway, alongside the control of introduced predatory species.



Issyk-Kul marinka brood fish. PHOTO: AZAT ALAMANOV

Project facts

*Duration: 2008-2013. GEF grant: \$0.98 million. Co-financing: \$3.13 million. For further information, contact Mr Azat Alamanov (Project Coordinator): a.alamanov@up.elcat.kg
Project web site: www.caresd.net*

In order to ensure responsible and sustainable future management of the Issyk-Kul fishery, a package of revisions to legislation has been developed and is currently under consideration by Parliament. Capacity for management and protection of the lake has been enhanced through provision of equipment for research, monitoring and patrolling.

These interventions should provide a foundation for the establishment of a managed fishery in Lake Issyk-Kul that sustains the unique fish fauna of the lake.

"I believe that the project has an essential role to play in the effective conservation of the endemic fish fauna of the lake."

DR HEIMO MIKKOLA,
INTERNATIONAL CONSULTANT
TO THE PROJECT.

4.6 Raising awareness and building support for biodiversity conservation

Awareness raising is a vital element of all projects in the region, but it can present particular challenges. Awareness programmes in projects tend to take two main forms:

- General or 'soft' awareness, concentrating on increasing general understanding and appreciation of the values of biodiversity, landscapes and cultures.
- Targeted or 'hard' awareness, using specific messages to change the behaviour and attitude of defined target groups, in order to resolve particular problems related to the objectives of the project.

Many projects have tended to focus mainly on the more 'soft approaches.' For example, investing in programmes for schools is a popular project activity, based on the belief that children who grow up more environmentally aware will behave in a more environmentally responsible way, and that these children may exert a positive influence on the behaviour of their families. Education and interpretation programmes aimed

at visitors to a protected area are usually designed to provide interesting information, to increase enjoyment of the visit, and to influence the future behaviour and attitudes of the visitors. Few would doubt the validity of these approaches, but the problem faced by projects is proving the impact that such 'soft' awareness programmes have in the relatively short time span of a project. This can lead to suggestions that awareness activities lack focus and are ineffective.

Increasingly therefore, projects are developing more targeted awareness programmes and activities, that attempt to define clear links between awareness raising, changes in behaviour by particular groups and measurable impacts on the ground to reduce identified threats. As projects across the region seek the right balance between 'soft' and 'hard' awareness approaches, they are learning some important lessons:

- Projects should conduct initial assessments of awareness among target groups at a very early stage, in order to provide a baseline for re-

assessment of awareness at the end of the project, using the same methodology.

- It is essential to identify awareness indicators that measure specific impacts and changes in attitudes or behaviours, rather than just measuring inputs (investments) into raising awareness.
- Awareness raising is more than providing education, information and instruction. Building partnerships, promoting ownership and fostering good working relationships with stakeholders are all valuable tools in developing understanding and promoting environmental action.
- The best awareness raising programmes use imaginative approaches and a diverse range of media and techniques that reflect local interests and cultures.

Four contrasting case studies are highlighted, showing how these lessons have been applied across the region.

Awareness really works for Kazakhstan's wetland managers, and they can prove it!



PROJECT:

Integrated conservation of priority globally significant migratory bird wetland habitat (2003-2011)

The project was established to enable government agencies, NGOs and local communities to maintain and improve the integrity and viability of Kazakhstan's priority wetland ecosystems. This objective has been largely achieved through a combination of new legislation, a doubling of

the area of wetlands and associated ecosystems within protected areas, and improvement of management effectiveness in three pilot sites (the Ural River delta, the Tengiz-Korgalzhyn wetlands and the Alakol-Sassykol lakes complex). The international importance of these wetland ecosystems has been recognised through des-

ignation of areas of the Tengiz-Korgalzhyn wetland system as a UNESCO World Heritage Site, a Ramsar Site and an Important Bird Area.

Targeted and well-designed awareness programmes have been critical to this success. A modern and imaginatively designed visitor centre

Wetlands of Kazakhstan

Over 50 million migrating birds pass through Kazakhstan each spring and autumn, between wintering areas in Africa and India and summer breeding grounds in Europe, Russia and Kazakhstan itself. The country's vast, biodiversity-rich wetlands provide vital sites for these birds to rest, feed and breed, and play a crucial role in collecting and storing the water necessary for the development of urban centres, industry and irrigated agriculture.

Today, Kazakhstan's wetlands are under threat. The current policy and legal frameworks have been inadequate to manage the growing demand for water, hampered by the lack of an integrated system of water resource management. From decision makers to local people, stakeholders have not sufficiently appreciated the importance of wetland ecosystems in maintaining and safeguarding national water resources. The managers of wetland reserves have found it difficult to curtail unsustainable use of natural resources by local people, who felt they had no alternative options for their livelihoods, and who did not appreciate how important healthy wetlands are for the survival of their communities.

While increasing numbers of visitors are attracted to the wetlands, facilities and regulations for ecotourism development and visitor management have been inadequate to cope with the demand and the impacts that tourism brings.



Greater flamingos (Phoenicopterus roseus) are a flagship species for Kazakhstan's wetlands.

PHOTO: ALEXEY KOSHKIN

was established at Korgalzhyn State Nature Reserve, within easy reach of the capital Astana. The centre serves as an ecological and educational centre for local people, official visitors and national and international tourists. It contains a range of flexible spaces and innovative interpretive displays, very different from the museums normally associated with such reserves. The centre is probably the first of its kind in Central Asia and has become a model for similar centres in the region.

Wetland topics have been introduced into school curricula and have been adopted by 22 schools, six of which now have special classrooms dedicated to wetlands. Educational materials about the wetlands have been prepared for the schools, and a children's eco club has been established at Korgalzhyn Reserve. At the national level, a programme of imaginative awareness events has used a range of media to improve understanding and appreciation of wetlands among the wider public and decision makers.

Crucially, the project has identified and monitored clear indicators to measure the impact of these awareness programmes. Awareness questionnaires were completed by decision makers and local community members in the three pilot sites at the beginning and end of the project. In each case, the results showed levels of awareness had increased substantially. The success of the schools programme could be verified by the formal adoption of the new wetlands curriculum. A particular example of good practice has been the identification and monitoring of an impact indicator (the use of fire as a means of managing pasture land in the wetland zones) to measure the behavioural changes brought about by awareness activities. As a result of targeted awareness campaigns, burning was reduced to almost zero in all three pilot sites.



◀ *Local school children enjoying a wetland education event.*
PHOTO: ARAI BELGUBAYEVA

Project facts

Duration: 2003-2011. GEF grant: \$8.85 million.
Co-financing: \$25.76 million. For further information, contact Mr Talgat Kerteshev (Project Manager): tkerteshev@mail.ru
Project web site: www.wetlands.kz

“Before the project started we were like lone wolves, working in a vacuum and rarely visiting other reserves. New ideas came to us mostly from television or newspapers. Wetlands were not valued by local communities, inhabitants did not understand why preserving them is important and it was difficult for us to explain the value of nature protection. Through the work of the project, we came to realize

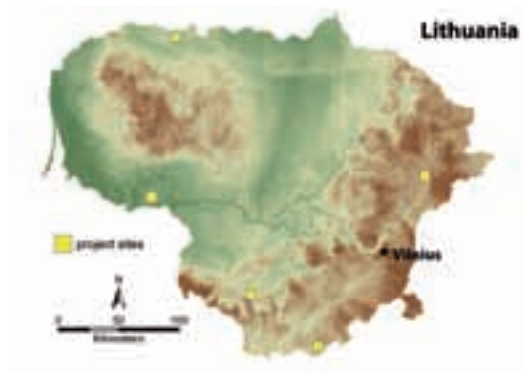
that the best way to conserve our wetlands is to inform the public about the value of the nature around them, and to teach them how to behave in protected areas. We have learnt how to reach out to people and discuss common problems. Nowadays, we are working together (as a pack) to overcome them!”

MURAT AITZHANOV,
DIRECTOR OF KORGALZHYN
STATE NATURE RESERVE.

Production of felt mats provides alternative livelihoods for local communities. PHOTO: AZHAR BAIBAKISHEVA



Changing attitudes in Lithuania through more open and inclusive protected area management



PROJECT:

Conservation of inland wetland biodiversity in Lithuania (2005-2010)

This project has adopted a two-pronged approach to addressing the threats to Lithuania's wetlands. First, it sought to demonstrate effective wetland rehabilitation and improved management *in situ* at five globally significant sites; second, it aimed to institutionalize best practices by replicating its work in wetland sites throughout the country.



Blocking ditches to raise water levels in Kamanos bog.
PHOTO: LIBRARY OF NATURE HERITAGE FUND

“After the project, a great proportion of nature management activities is being implemented by local farmers. The project gave them the inspiration and tools to manage the wetlands of Žuvintas Biosphere Reserve and to participate in rural development programmes. Together, we improved about 117 ha of important habitats just in 2009.”

ARŪNAS PRANAĪTIS,
DIRECTOR OF ŽUVINTAS
BIOSPHERE RESERVE.

In the course of the project, management plans for the five target sites were developed and adopted, and a range of practical wetland restoration and management techniques were successfully implemented, including the reintroduction of the capercaillie (*Tetrao urogallus*), the largest member of the grouse family of birds. As a result, the condition of the ecosystems and biodiversity and the effectiveness of management at the five focal wetlands have improved significantly.

Lithuania's wetlands

Although they occupy only about 5 percent of its territory, wetlands are among Lithuania's most important ecosystems. They support a host of rare, endemic and endangered resident species and are important staging posts for over 170 migratory bird species. By the mid-1990s, 70 percent of the total wetland area in the country had been lost, as a result of agricultural drainage, succession of wetlands to scrub, intensification of forestry, over-harvesting of wetland products and diminishing water quality.

In order to address these threats, the Government of Lithuania has identified wetland biodiversity as a top priority for conservation action in its National Biodiversity Strategy and Action Plan, and has developed general action plans for protection of wetland ecosystems and for protection of species.

Alongside these very direct achievements, the project has facilitated a major change in the relationship between the protected areas and local stakeholders. Previously, the wetland reserves were regarded as restricted, closed areas and had

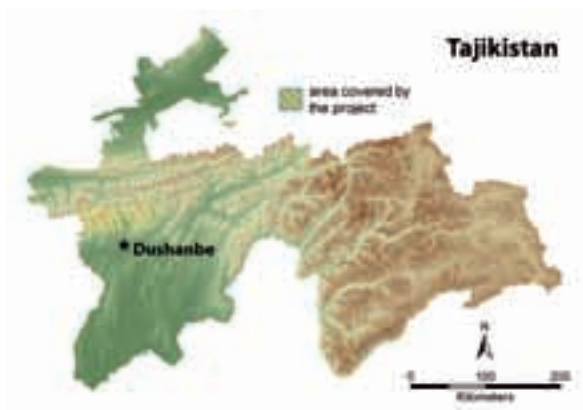
operated in a quite exclusive way. Since the start of the project, the reserves have opened visitor facilities, enabling the public to visit the wetlands, to enjoy them and to understand more about their importance. The project also helped facilitate new working relationships between reserve administrations, local communities and local government. Education and awareness outreach programmes were implemented, while joint projects, such as cleaning out a lake and building a fish ladder at a dam site, have fostered better mutual understanding between the reserve administrations, local communities and municipal authorities.

This new, more open and inclusive approach has not just changed the attitudes of local communities and authorities; the awareness and attitude of the reserve staff have also changed as they have developed partnerships with their neighbours. The success of this new way of working is demonstrated by the growing number of local people volunteering to help with the management of the reserves.

Project facts

Duration 2004-2010. GEF grant: \$3.441 million. Co-financing: \$10.424 million. For further information contact: Maxim Vergeichik (Regional Technical Advisor): maxim.vergeichik@undp.org

Tajikistan: raising awareness and supporting communities by building effective partnerships



PROJECT:

Demonstrating new approaches to protected areas and biodiversity management in the Gissar Mountains as a model for strengthening the national Tajikistan protected areas system (2006-2010)

The Gissar Mountains

The Gissar Mountains are located in western Tajikistan and south-eastern Uzbekistan and are included in one of WWF's 'Global 200' ecoregions. The fauna of the Gissar Mountains includes species of both Indo-Himalayan and Mediterranean origin, as well as relict and endemic species that have persisted in the area since the tertiary period (more than 2 million years ago), having disappeared from much of their former range elsewhere. Within the area, it is estimated that there are over 221 vertebrate species, over 3,000 invertebrates and more than 2,000 plant species. 14 plants and animals from the area are listed in the IUCN Red Data Book, including the snow leopard (*Panthera uncia*), central Asian otter (*Lutra lutra seistanica*), central Asian cobra (*Naja oxiana*) and cinereous vulture (*Aegypius monachus*). In addition to their globally significant biodiversity, the Gissar Mountains contain other important natural and cultural features, including over 500 fossilised dinosaur footprints, numerous archaeological sites, and spectacular and beautiful landscapes.

Traditional land use practices and tenure systems, developed over centuries, were disrupted and largely abandoned in the twentieth century, while rapid population growth between 1970 and 2000 meant that the Gissar ecosystem's carrying capacity could not withstand the growing pressure on its resources. The most direct threats are now overgrazing, unsustainable hunting and logging.

The project was designed to address the weaknesses in protected area governance in Tajikistan and to test practical site management, conservation and financing mechanisms in three prominent protected areas, covering 32,839 ha in the Gissar Mountains.

Particularly important lessons can be learned from the awareness activities of the project. The original intention was to link awareness with increased community participation and piloting of environ-

mentally sustainable income generation activities in and around the three protected areas. Initially these activities were rather unfocused and ineffective, but following a review of the project's performance, the situation improved significantly. What made the difference was an intensive effort to build effective partnerships for implementing the project with local communities. This new partnership approach was based around the establishment of resource centres in four local Jamoats (local administrative units) and the engagement of



Mobile theatre as a tool for increasing community awareness. PHOTO: MIRZOHAYDAR ISOEV

a national NGO to reach out to communities through the Jamoats. In this way, awareness activities were not so much delivered from outside, but developed within the local communities, building a real sense of ownership and creating obvious linkages to the benefits arising from the project's activities.

This partnership approach was adopted in other components of the project too. Special efforts were made to strengthen working relations with the key institutional stakeholders, and the project helped establish inter-ministerial working groups to draft new legislation. Partnership-building has served to raise significantly the profile of protected areas, at national level within Parliament and government agencies, and locally within the Jamoats and communities.

▼ *Forestry nurseries are a means for ensuring financial sustainability.*
PHOTO: MIRZOHAYDAR ISOEV



This new level of awareness, cooperation and understanding has led to some important achievements including:

- Adoption of a new protected areas law and forest code. The relatively quick passage of legislation was due to the establishment of the inter-ministerial working groups to fast-track the process.
- Official endorsement of a new, participatory process for protected area management planning, which has been enthusiastically adopted by national stakeholders and already applied in two protected areas. The State Agency for Protected Areas is now developing management plans for all 18 of Tajikistan's protected areas using the same methodology.
- Provision of vocational training in protected area management for forestry and protected area agency staff. Training topics have included participatory planning, use of management effectiveness tracking tools, innovative financing approaches, and use of geographical information systems.
- Increased opportunities for local communities around the target protected areas to improve their livelihoods in ways that do not adversely affect biodiversity. This has stemmed from the establishment of the Jamoat re-

Project facts

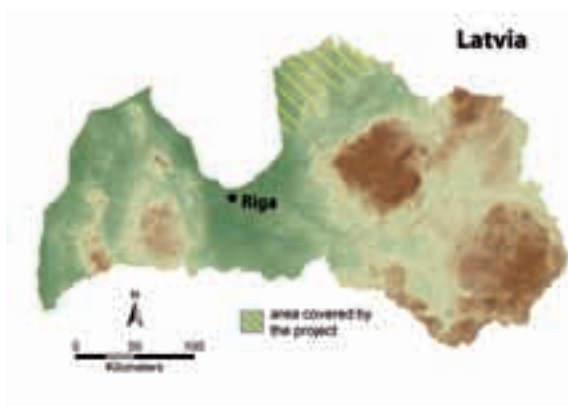
Duration: 2006-2010. GEF grant: \$0.98 million. Co-financing: \$1.72 million. For further information, contact Ms Nargizakhon Usmanova (Programme Analyst): nargizakhon.usmanova@undp.org

source centres and of a highly successful micro-loan foundation.

"The interventions made by the project have provided a platform for ensuring a participatory approach to achieving environmentally sustainable livelihoods in and around protected areas, through establishing a network between the villages and increasing local awareness about sustainable resource management".

KUVAT MURODOV,
CHAIRMAN OF THE ROMIT JAMOAT
RESOURCE CENTRE.

'Nature Concerthalls' bring Latvia's biodiversity to the stage



PROJECT:

Biodiversity protection in North Vidzeme Biosphere Reserve (2004-2009)

This project's overall aim was to integrate biodiversity conservation into all aspects of the planning, management and sustainable use of the North Vidzeme Biosphere Reserve's resources. The project has met with considerable success. Between 2004 and 2008, more than 600 ha of floodplain areas were restored, along with 32 ha of river rapids serving as spawning areas for Atlantic

salmon (*Salmo salar*) and other species. These activities have stimulated local farmers to become more involved in networking and exchange of experiences, triggering an increase in applications for EU agrienvironmental funding. A detailed landscape ecological plan was developed for the Biosphere Reserve, determining its key abiotic, biotic, and cultural values and identifying the approaches required to conserve them over the next 25 years. The plan covers 42 landscape areas in the

Reserve's territory, prescribing for each landscape the management actions necessary to achieve short- and long-term goals.

The project has attracted particular attention and praise for its innovative approaches to public awareness. In order to move beyond more conventional methods of communicating messages to the public about biodiversity and conservation, the project developed the concept of a 'Nature

North Vidzeme Biosphere Reserve

The North Vidzeme Biosphere Reserve (NVBR) was established in Latvia to protect the Salaca River basin, which includes the Salaca River and Lake Burtnieki, as well as their tributaries, and the inshore waters along 60 km of the gulf of Riga's Vidzeme coast. The Reserve's total area of 457,000 ha, including 116,000 ha of marine ecosystems, represents nearly 6 percent of Latvia's entire territory. The landscape is characterized by wetlands, raised bogs, semi-natural grasslands, coastal meadows, forests, agricultural lands and a range of periglacial features. The Biosphere Reserve is more than 45 percent forested, with numerous lakes and approximately 20,000 ha of bogs, two thirds of which are undisturbed raised bogs, supporting relict tundra plant associations found nowhere else in NVBR.

In 2004, the Biosphere Reserve was suffering from increasing deforestation, forest fragmentation, habitat degradation and illegal use of natural resources. Following land privatisation and the economic changes of the mid-1990s, new absentee forest owners had little interest or incentive to continue using the semi-natural grasslands for traditional, biodiversity friendly agriculture. In the wetland areas, the primary threat came from peat extraction. More widely, major agricultural decline and a lack of economic alternatives have left many local inhabitants with little choice but to pursue unsustainable natural resource exploitation.



Participants at the lichen themed event.

PHOTO: ANDRIS SOMS

Concerthall' (*Dabas koncertzāle* in Latvian). This involves cooperation between scientists, musicians, poets and photographers to create a unique public performance in a natural setting, that both informs and inspires the audience about nature protection. These concerts have been conducted annually and free of charge since 2006, attracting audiences of all ages, backgrounds and interests.

The Nature Concerthall event has continued to thrive after the end of the project, with public and private sector investment and widespread support from the general public. The event has received extensive publicity and won several awards. Each year, it adopts a particular emblematic, and often unexpected species as its theme and 'hero', such as a bug (*Osmoderma eremita*); a bird, the chiffchaff (*Phylloscopus collybita*); a caddisfly (*Hydropsyche instabilis*); a lichen (*Graphis scripta*); and, in 2011, a seaweed, the bladderwrack (*Fucus vesiculosus*).

The Nature Concerthall events are much more than entertainment. They are designed to encourage active involvement of the public in nature protection, to build and share cultural and natural values and to promote public support for sustainable development. The 2011 concerts attracted more than 11,000 people in two locations, where hands-on activities, music and poetry were enjoyed in settings overlooking the spectacular and unique Baltic Sea.

"We have found a new way to inform people about what nature is and to renew the emotional ties to that which is under our feet, chirps in the trees or is hidden behind the bark of a tree. The emotional, educated connections created during the Nature Concerthall increase our audience's feelings of responsibility for conserving and caring for nature in their everyday lives!"

INGUS ULMANIS,
MUSICIAN AND CO-CREATOR
OF THE NATURE CONCERTHALL
CONCEPT.

Project facts

*Duration: 2004-2009. GEF grant: \$2.91 million.
Co-financing: \$10.84 million. For further information, contact: Silvija Kalnins: silvijak23@gmail.com*

4.7 Ensuring project sustainability

An essential requirement for the success of a project is that its achievements are sustained after the end of the grant period. Where insufficient attention is paid to ensuring the legacy of projects, their achievements can start to erode away quite rapidly. Poorly designed and communicated projects can also encourage the false assumption that sustainability is the responsibility of donors, through follow-up projects and grant extensions.

Although UNDP works to build sustainability into all its projects, ensuring their long-term legacy is often easier said than done. Sustainable solutions cannot just be blueprinted, they have to be designed to fit the contexts, needs and capacities of the country and of the national implementation partners. The first step is usually to understand what are the specific challenges to sustainability.

Government funding. Almost always, the first barrier to sustainability identified by partners and stakeholders is a lack of money. An analysis con-

ducted in 2008 in 13 countries of the region showed that the average national level of protected area financial effectiveness was just 24.8 percent, ranging from 11 percent in Moldova to 59 percent in Turkey⁴⁰. Financial effectiveness did not seem to depend on whether the country belonged to the EU membership/pre-accession group, or to the CIS. Thus, the Former Yugoslav Republic of Macedonia (13 percent) and Romania (17 percent) had low scores, while Turkmenistan and Kazakhstan had higher scores of 30 percent and 40 percent respectively. The higher scores from many former Soviet countries may be attributed to the inherited requirement to build into annual government budgets at least a basic level of funding for strict protected areas (the most widespread protected area category). In the EU and EU candidate countries, however, protected area funding is not secured, and often becomes one of the first victims of cost cutting. Adequate alternative mechanisms for funding have not yet been developed to fill the resulting shortfalls.

The most common scenario across the region is that available budgets at best only cover basic recurrent costs, such as staff salaries and administrative costs, while funding for equipment, infrastructure and active management is often inadequate or non-existent. Given these constraints, it is remarkable just how much protected area administrations in the region are achieving with so few resources.

Diversifying sources of income. Establishment of efficient revenue generation mechanisms as alternatives to state funding remains the major challenge in the region, scoring just 15 percent in the 2008 effectiveness assessment. Introduction of the legal and institutional measures required to mobilise new sources of funding scores more highly (29 percent). This suggests that the need for increased and diversified funding is, to some extent, being recognised, but that substantial efforts are still required to ensure sustainable funding for the region's protected area estate.

40 Bovarnick, A. (2007) *Financial sustainability scorecard for national systems of protected areas*. UNDP, New York.

Countries assessed were: Armenia, Georgia, Kazakhstan, the Former Yugoslav Republic of Macedonia, Moldova, Montenegro, Romania, the Komi Republic of the Russian Federation, Serbia, Turkey, Turkmenistan, Ukraine and Uzbekistan. The assessment used the UNDP-GEF protected area system financial scorecard. 20 different elements were analysed, pertaining to the legislative, business planning, site management and revenue generation aspects of a country's protected area system. The results are presented as percentages of maximum possible scores.

Many protected area managers are keen to explore new ways to generate additional funds locally, most frequently through tourism and resource use charges. They are often frustrated, however, by legal restrictions on economic activities permitted in strict nature reserves, and by limitations on the ability of protected area administrations to earn and retain income. Many managers also lack the commercial skills required to run a protected area as an enterprise as well as a service.

Financial planning. Addressing the financial challenges faced by protected areas is not just a matter of providing more money. The limited resources that are available are often not put to the best possible use. Frequently, budget allocations and expenditure are not based on defined strategies, logically identified needs or on a prioritised management plan. Protected area projects across the region are now preparing financial sustainability plans (often called business plans) alongside management plans, but business planning is a very new concept, often requiring a whole new approach to financial planning and management that may not conform with official budgeting practices.

Strengthening local economies. Providing alternative livelihood opportunities for local people is a major component of many projects, based on the assumption that this will help reduce unus-

tainable resource use, and curtail illegal activities that bring local people into conflict with protected area authorities. It is a major challenge for projects with limited budgets to transform rural economies within relatively short project timescales. Two of the most effective tools used by projects for achieving this have been microfinance and building local capacities to gain access to continuing sources of support.

Capacity development. Capacity development is a common element of all projects, but there is a tendency to equate it just with short term training. While many projects have delivered good quality training programmes for protected area staff and stakeholders, fewer have been successful in sustaining the impact of training by leaving a legacy of permanent programmes. Introducing measures to build 'learning organisations' that practice adaptive management and that continually strive to monitor and improve performance and effectiveness can prove particularly challenging, as this approach often runs contrary to long established institutional norms and cultures.

In order to be able to adopt and adapt to new models of protected area management, institutional capacities also usually require attention. The need for new approaches requires new skills, while the introduction of more open and participatory forms of governance and management requires fundamental changes to the ways in

which institutions function. Many projects encounter considerable resistance to such changes, especially if they are seen as coming purely from the outside.

Changing the law. Many project teams have found that securing the sustainability of new approaches to funding, institutional management and protected area governance requires changing the law, normally a complex and lengthy process. Changing the ways in which state biodiversity conservation institutions operate and are funded does not generally just involve changing nature protection laws; it requires modification of other legislation, often to an extent far beyond the scope of individual projects. None-the-less, there have been some notable successes in updating legislation. A particularly effective solution has been to focus on preparing secondary legislation and official guidance that helps institutions understand and implement the existing laws.

The overall lesson from projects in the region is that although securing adequate funding is essential, achieving sustainability is about much more than money; it requires supporting new financing instruments with changes in legislation and in the fundamental ways in which institutions function. All of these changes require the development of new skills. The following specific lessons can be drawn from the experience of projects in the region working to achieve sustainability:



Traditional transportation in Küre Mountains National Park, Turkey.

PHOTO: YILDIRAY LISE



- Projects should start planning for sustainability from the very start. If it is treated as a 'bolt on' issue to be addressed in the final year, it probably will not happen.
 - Protected area budgeting and funding should be managed strategically, based on identified needs and priorities. The basis for achieving this is a modern management plan prepared in conjunction with a business plan. Together, these plans should provide logical, costed and prioritised schedules of activities that can be used to justify budget requests and funding proposals. Such an approach may not always guarantee that the full budget will be allocated, but it should ensure that the money that is available is spent in the most effective and efficient way.
 - For funding of protected areas to be prioritised and increased, decision makers and the wider public must understand their values, not only in terms of the biodiversity that they protect, but also in terms of the services they provide for local and national economies and society in general. Innovative approaches such as ecosystem valuation studies and payments for ecosystem services are now being introduced by projects; the next step is to demonstrate how these innovations can help to deliver tangible benefits.
 - Protected area administrations need to become more entrepreneurial and imaginative in securing the funds they require. For this to happen, the administrations need more flexibility to raise and manage funds, managers need to learn very different ways of working, and safeguards are required to ensure that these changes do not compromise the fundamental conservation functions of protected areas.
 - Capacity building is not just training. Projects should examine very carefully the factors that limit the ability of individuals and institutions to do a good job, and should focus on addressing those limiting factors. Training has its place in building capacity, but it is seldom the only solution required.
 - It is unrealistic for projects to present unilaterally prepared proposals for new policies and laws and to expect them to be rapidly approved. The projects that have had success in this area have worked closely with the responsible authorities and decision-making bodies throughout the process.
- The five case studies that follow illustrate many of these lessons.

◀ *Sultansazlıği Ramsar site in Turkey.*
PHOTO: MICHAEL R APPLETON

Building capacity for funding and management of protected areas in Montenegro



PROJECT:

Catalysing financial sustainability of the protected area system in Montenegro (2009-2012); Strengthening the sustainability of the protected area system in Montenegro (2009-2012)

The project 'Catalysing financial sustainability of the protected area system in Montenegro' focuses on three main objectives: strengthening the capacity to effectively secure and administer funds for the entire protected area system; working with stakeholder groups to diversify and increase the available funding for two focal protected areas; and developing more cost-efficient systems for financial management and administration.

This project is working to introduce new approaches to funding of biodiversity conservation. In order to provide quantified justifications for increased and sustained public investment in protected areas, an economic valuation of the protected area system is being prepared, while a consultative process for establishment of a scheme for payment for ecosystem services in the Skadar Lake area has already been completed.

The project also recognises the need to increase national capacity for effective and efficient protected area planning, management and financing. The project team is supporting national universities to develop and deliver vocational educational programmes that address both protected area management and regional development. Two universities are now offering different programmes in this field, targeting both 4th year college seniors wishing to pursue a career in natural resource management, and public sector employees seeking to strengthen their profes-

From the mountains to the Mediterranean

The Republic of Montenegro is a small country located in south-eastern Europe. The terrain of Montenegro ranges from high mountains, through a segment of the karst of the western Balkan peninsula, to a narrow (2-10 km wide) coastal plain and the biodiversity rich waters of the Adriatic Sea. Over a short distance, there is a sharp change from a Mediterranean climate at the coast to a sub-alpine climate in the highest mountains. Montenegro is floristically one of the most diverse areas of the Balkan peninsula, with more than 1,000 species and 223 endemic taxa. Detailed information on the fauna of the country, in particular on threat status, remains quite limited.

Pressure on Montenegro's natural environment is growing, as a result of urbanization, rapid tourism development and unsustainable use of natural resources. Protected areas cover just over 9 percent of the country, but the total funding currently available for the planning and administration of the protected area system is estimated to be at least 50 percent below what is required for its effective management.

sional capacities for protected area management, fund raising and financial management. The university programmes also include modules on institutional management, business administration, entrepreneurship and management of EU funds.

In parallel, the activities of a second project ('Strengthening the sustainability of the protected area system in Montenegro') are focusing on protected area establishment and expansion, and on building institutional and individual capacities for site planning and management, targeting envi-

Project facts

'Catalysing financial sustainability of the protected area system in Montenegro'. Duration: 2009-2012. GEF grant: \$0.95 million. Co-financing: \$7.26 million.

'Strengthening the sustainability of the protected area system in Montenegro'. Duration: 2009-2012. GEF grant: \$0.95 million. Co-financing: \$5.44 million.

For further information, contact Mr Borko Vulikić: borko.vulikic@undp.org

ronmental professionals seeking to upgrade their qualifications. Competence standards and a programme of vocational training for protected area rangers have also been introduced.



◀ *Hiking in the Bjelasica mountains, Montenegro.*
PHOTO: CARLY CALHOUN

Russian Federation: focus on sustainability in Kamchatka



PROJECT:

Demonstrating sustainable conservation of biodiversity in four protected areas of Russia's Kamchatka Oblast(2005-2012)

The project was established to demonstrate approaches for sustainable and replicable conservation of biodiversity in four protected areas, as a model for a sustainable system of protected areas throughout Kamchatka. Each one of the target areas conserves different ecosystems and

species assemblages of the Kamchatka peninsula: tundra (arctic and alpine), boreal coniferous forests, temperate deciduous forests, freshwater lake ecosystems, freshwater wetlands, and marine inshore waters.

Measures to ensure sustainability have been introduced by the project in many different and imaginative ways:

- The project addressed the problem of lack of police powers for protected area rangers by creating inter-agency anti-poaching brigades, bringing together rangers, police and representatives of various natural resource management agencies. This new cooperation has continued after the end of the project, and has led to a significant reduction of poaching in particularly sensitive areas.

The biodiversity of Kamchatka

The 1,500 km long Kamchatka peninsula in the far east of Russia is recognised as one of the world's great natural wildernesses. Kamchatka's unique values are not determined by species richness alone, but by a combination of ecological, geological, and geographic attributes. Kamchatka's biodiversity includes a complete assemblage of typical species of northern latitudes. Furthermore, the diversity of altitudes and the climatic variations in Kamchatka support continuous sequences of ecosystems and species assemblages, from 3000 m high mountains to the continental shelf. Kamchatka is also home to several indigenous groups with diverse cultures and lifestyles, ranging from nomadic reindeer herding to sedentary fishing. These unique attributes have been recognised by the designation of Kamchatka as a WWF 'Global 200' ecoregion and by the inscription of six of Kamchatka's protected areas on the UNESCO World Heritage List.

In the past twenty years, economic hardship and social changes have encouraged an increased reliance on natural resources to support both individual livelihoods and the economy of Kamchatka in general. Poaching, especially of salmon, has become a major component of the region's economy. National and international tourism have increased, bringing benefits, but also damaging popular sites. At the same time, fewer financial resources have been available for protected areas and biodiversity conservation, reducing capacity for protection and management at a time when pressures have been increasing.

Project facts

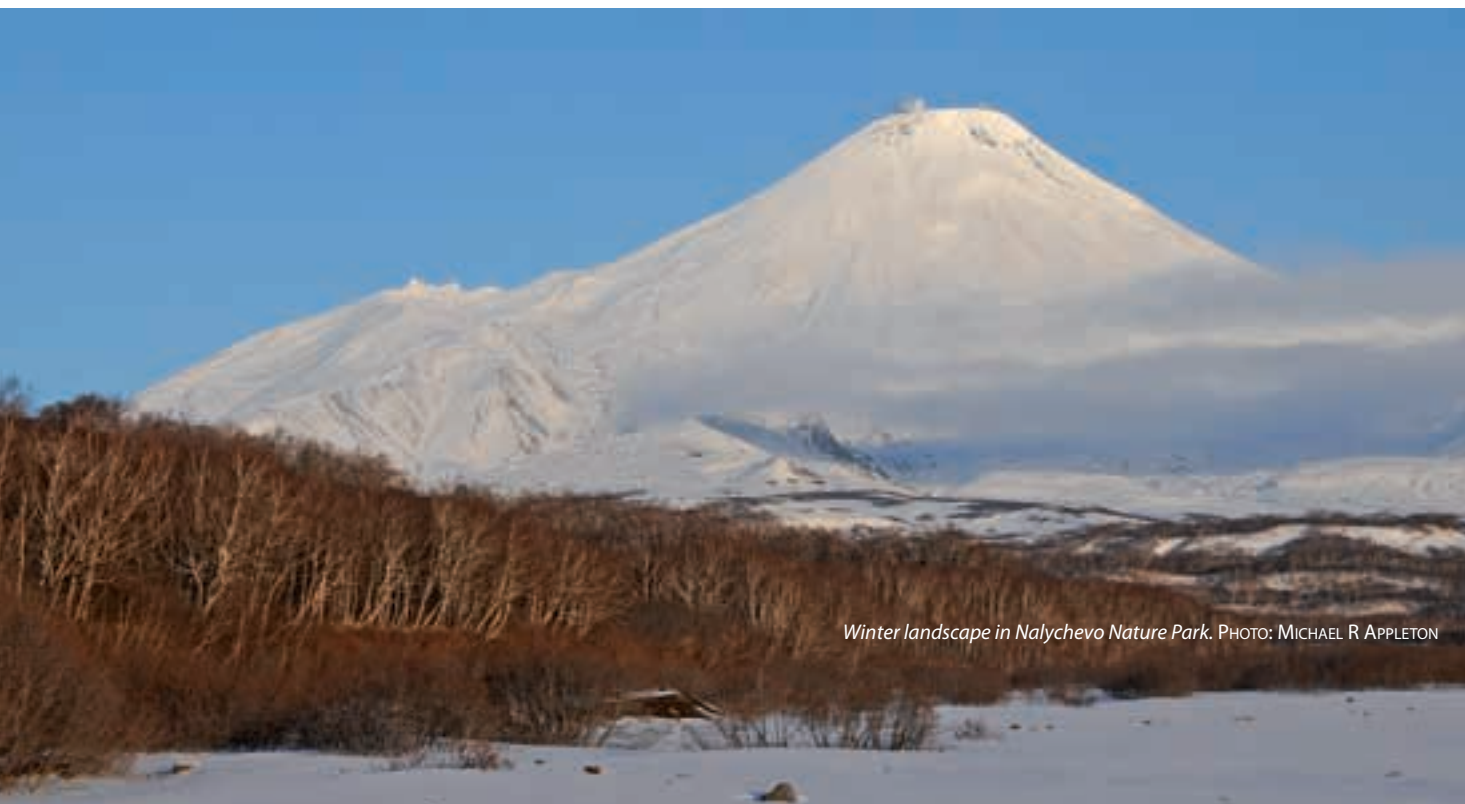
Duration: 2005-2012. GEF grant: \$5.5 million. Co-financing: \$9.9 million. For further information, contact Nataly Olofinskaya: nataly.olofinskaya@undp.org

- With support from the project, compilation of protected area management plans has included a new approach to budgeting, based

on identified needs rather than expenditure of predetermined budget allocations. This has provided clear, fact based justifications, which when combined with concerted campaigns to increase awareness of the values of Kamchatka's protected areas, has led to successful requests for increased budget support.

- The successful and effective Community Councils established in two Nature Parks have voted to continue their work after the end of the project.

- The staff of the training centre established under the project have adopted a professional and realistic approach, keeping overheads low, focusing on training capacity (rather than unsustainable investments in buildings and equipment), and seeking commercial training opportunities in the tourism sector in order to subsidise training of protected area staff.
- In order to promote alternative livelihoods for local people, the highly successful Small and Medium Enterprises Support Fund (SMESF) was established, providing initially grants and subsequently microcredit to local enterprises around the focal protected areas. By the end of the project, 1,023 loans had been provided, totalling more than \$11 million and with a default rate of just 1.5 percent. In Bystrinski District, one of the main focal areas of the SMESF, the local economy has more than doubled in size since 2003, overall employment has also doubled, and unemployment has halved. The SMESF now functions as a successful self-sufficient and independent entity. In return for capitalisation by the GEF project, it also provides at least \$200,000 annually to support protected areas, administered through the Kamchatka Krai Protected Areas Association, a regional non-profit organisation established by the project. These remarkable achievements have received widespread praise, and a similar approach has been adopted by other projects in the region.



Winter landscape in Nalychevo Nature Park. PHOTO: MICHAEL R. APPLETON



Ranger station in Uzon caldera, Kronotsky Biosphere Reserve. PHOTO: ADRIANA DINU

Greening of credit instruments in Croatia helps to embed biodiversity conservation into local development



PROJECT:

Conservation and sustainable use of biodiversity in the Dalmatian coast through greening coastal development (2007-2014)

The project is helping to integrate biodiversity into the fabric of economic and developmental decision making, before the coastal area is unac-

Croatia's Dalmatian coast

The Dalmatian coast of Croatia is a unique mosaic of marine and terrestrial ecosystems. The Croatian archipelago is the second largest in the Mediterranean, while the waters of the Adriatic support large numbers of endemic fauna and flora, including *Posidonia* sea grass meadows that provide a habitat for numerous marine species, most notably juvenile populations of the loggerhead turtle (*Caretta caretta*). *Posidonia* beds are threatened across the Mediterranean, although in Croatia they still cover large areas of coastal waters up to 50 metres deep. The Dalmatian coast is one of the priority areas for conservation in the Mediterranean, and over 38 percent of its habitats are listed in the EU Habitats Directive.

The economic development of the areas is based mainly on the growth of local and international tourism, fisheries and agriculture. Out of almost 6,000 km of coastline, almost 900 km have already been developed, and a further 1,500 km are scheduled for development according to the statutory spatial plans.

ceptably altered. The project's main entry point is the Green Business Support Programme (GBSP), established at the end of 2008 in partnership with development agencies of the four Dalmatian counties, and providing grants, partial credit guarantees and subsidized loans to biodiversity-friendly businesses. Initially, the GBSP focused on grants, but it now also offers a partial loan and guarantee fund for small businesses, in partnership with local banks. So far, 79 GBSP projects have been supported, the majority dealing with organic agriculture and cultivation of native plant varieties, rural tourism and shellfish farming. The partial loan and guarantee fund has so far provided 13 loans, with many more in the pipeline.

The GBSP has proved to be a highly effective tool for leveraging co-financing for the project. Grants totalling \$800,000 have enabled implementation of projects with a total value of \$13.2 million, while projects worth an additional \$7.3 million are supported by combinations of GBSP grants and loans (\$820,000) with guarantees of up to 50 percent.

The economic crisis of 2009-2010 led to a reduction in interest from micro- and small businesses in investing in green products and services. In order to maintain the interest, the project embedded a network of biodiversity business consultants within the country's regional develop-

ment agencies, tasked with enrolling new green business operators in Dalmatia, and advising existing green businesses on coping with the crisis. In parallel, the project provides training for commercial banks in Croatia on improved environmental and social risk management when issuing credit.

The long-term plan is to equip the regional development agencies and commercial banks to the extent that they can take over the GBSP in its entirety, having acquired the institutional capacity required for green business project formulation, financing, monitoring and evaluation.

Project facts

Duration: 2007-2014. GEF grant: \$7.01 million.
Co-financing: \$24.34 million. For further information, contact Mr Gojko Berlengi (Project Coordinator): gojko.berlengi@undp.org
Project web site: www.undp.hr/coast

“In the last two years, the area under organic cultivation in Šibenik in Knin County has increased more than threefold, from 160 ha in 2009 to 520 ha in 2011. The Green Business Support Programme, implemented by the County Development Agency and the COAST project, has contributed significantly to this growth. In order to sustain this trend, we have included this programme into the County Development Strategy, which was adopted this year.”

GORAN PAUK,
PREFECT OF ŠIBENIK, KNIN COUNTY.



Commercial farming of the shellfish *Venus verrucosa* supported by the Green Business Support Programme. ►

PHOTO: GOJKO BERLENGI

Tourism in protected areas; one way to generate income in Pripyat-Stokhid National Nature Park, Ukraine. PHOTO: VITALIY KARANDA



Effective policies and trained and united staff contribute to sustainable financing of Ukraine's protected areas



PROJECT:

Strengthening governance and financial sustainability of the national protected area system (2008-2012)

Ukraine's protected area system

Ukraine's total area of 603,550 km² falls within three broad ecological zones: mixed forests (Ukrainian *polissya*: 25 percent), forest-steppe (35 percent), and steppe (40 percent). Overall, nearly 20 percent of the land area is considered to be in a 'natural' state, with about 13 percent having 'high ecological integrity', particularly in the Carpathian region, the mountainous part of Crimea, and the *polissya*.

The biodiversity of Ukraine is globally significant; although the country covers less than 6 percent of the area of Europe, it supports approximately 35 percent of Europe's species diversity. Accordingly, 141 Important Bird Areas and 33 Ramsar Sites have been recognized. Ukraine's protected area system comprises over 7,000 sites of different categories, covering 3.4 million ha. At 5.6 percent, however, the proportion of land within the protected area system remains far below the European average of more than 15 percent. In 2008, the Government of Ukraine decided to extend its protected area estate to more than 6 million ha, but the resources available are far from adequate to facilitate this expansion in the short to medium term. Expansion, though vital for providing security to biodiversity, would not be realistic or effective without addressing major limitations related to the legal and administrative framework, financing and capacity for managing the protected area system.

The project aims to demonstrate mechanisms for improved management of the Ukrainian protected area system, focusing primarily on financial and institutional aspects. This is being achieved through programmes at the national and local levels.

The project has prepared a strategy for the overall financial sustainability of the protected area system, which is being submitted to the

Cabinet of Ministers for approval, along with other legal amendments and a new regulation on assessment of management effectiveness of protected areas. Once approved, this strategy and updated legislation will allow for diversification of revenue sources and governance systems for all Ukraine's protected areas.

Effectiveness and efficiency in financial management are also being promoted at both the insti-

Project facts

*Duration: 2008-2012. GEF grant: \$1.8 million. Co-financing: \$4.066 million. For further information, contact Mr Vasyl Tolkachov (Project Coordinator): vasyt.tolkachov@undp.org
Project web site: www.pzf.org.ua*

tutional and site levels. Legal and normative documents to implement the strategy on financial sustainability have been drafted and submitted to the State Service on Protected Areas of Ukraine. The first protected area business plans in Ukraine have been developed for the project's pilot sites, Shatsk National Nature Park and Pripjat-Stokhid National Nature Park.

In order to ensure successful adoption of the new measures that are being introduced, substantial investments have been made in building individual capacities, through establishment of a permanent vocational training system for protected area management and financing. The Ukrainian Association of Protected Areas has been established, uniting 24 out of 45 national parks to strengthen coordinated action and enable exchange of experience among their staff, thereby increasing their capacity to raise funds to support their protected areas.

The project has been introducing these innovations through a period of political change and economic hardship in Ukraine, which has caused considerable challenges for the implementation team and its partners. Despite this, the combined effects of the work of the project are now being reflected in major improvements in the management effectiveness scores of Ukraine's national parks, compared to the baseline year of 2008.

"The Government of Ukraine is actively working to improve the protected area management system. In the framework of the project, the Association of Protected Areas of Ukraine is uniting many parks and reserves and is conducting training on protected area management, public awareness raising, green tourism and recreation. We are paying special attention to financial sustainability of protected areas, and we have been active in supporting the development of the national strategy. These and other results of the project will promote the further development of the national protected area system and strengthen its financial sustainability."

MR MYKOLA STETSENKO,
PRESIDENT OF THE ASSOCIATION
OF PROTECTED AREAS OF UKRAINE.



◀ *Training on protected areas management in Kaniv Nature Reserve.*
PHOTO: A. PODOBALO

Changing the law is the key to improved and more sustainable biodiversity conservation in the Former Yugoslav Republic of Macedonia



PROJECT:

Strengthening the ecological, institutional and financial sustainability of Macedonia's protected area system (2007-2012)

The project was formulated to assist the Macedonian Government to protect its rich biodiversity by removing a number of critical threats, such as capacity and resource gaps, insecure legal and institutional tenure, and inappropriate land use and management. The country is currently in the process of establishing a more representative

network of protected areas, re-evaluating and re-proclaiming all the individual sites within the network and appointing properly capacitated institutions to manage them. A planning framework is being instituted for managing the updated protected area system, based on national strategies and sectoral development plans.

A wealth of biodiversity in a small landlocked country

Macedonian natural heritage is characterized by a high level of species diversity and a concentration of relict and endemic species that is remarkable for a small, landlocked country. Although the entire national territory encompasses only 0.26 percent of the European continent and 5 percent of the Balkan peninsula, a disproportionately large portion of European biodiversity is concentrated there: around 34 percent of vascular plants, 14 percent of freshwater fish species, 20 percent of amphibians, 25 percent of reptiles, 64 percent of birds and 29 percent of mammal species. More than 250 plant species are locally endemic.

The threats to the country's protected areas and biodiversity have a number of root causes. These include insecure legal and institutional tenure, limited skills and capacity of the responsible agencies, illegal development and resource use in protected areas, a general lack of political and civil support for protected areas as an economically viable form of land use, and the inappropriate management and unsustainable use of protected areas to meet individual protected area agencies' economic imperatives.

European Union accession is now the key development driver, and the country is currently seeking to align both its legislation and the design, planning and management of its protected area network with global and European best practices.

Project facts

Duration: 2007-2012. GEF grant: \$1.0 million. Co-financing: \$4.16 million. For further information, contact Sandra Ismanovski (Communications and Partnership Officer): sandra.ismanovski@undp.org

The key to achieving the objectives of the project has been updating national legislation to allow policy and management practices to be revised and to enable approximation of European Union environmental legislation. Following a long process of research, consultation, negotiation and

▼ *National workshop to review changes to the Law on Nature Protection. PHOTO: MICHAEL R APPLETON*



drafting, facilitated by the project, the Parliament passed the two major packages to amend the Law on Nature Protection in 2010 and 2011. These amendments include clarification of the procedures for scheduling rare and endangered species, and a complete revision of the classification of protected areas in line with that of IUCN. Critically, the changes have created many more opportunities for sustainable funding of protected areas, including a legal basis for introducing payments for environmental services. To support implementation of the revised law, a major package of secondary legislation and guidance material has been prepared with technical assistance from the project. Three new by-laws have been endorsed and published so far, and a further fourteen are in the process of endorsement by Parliament.

As well as supporting a comprehensive re-evaluation of the national system of protected areas and a proposal for system expansion, the project has also facilitated the development of modern management plans and business plans for four protected areas, and has provided training for all 85 local self-government units responsible for the majority of the protected areas in the country.

As the country moves towards EU membership, these changes have provided a strong foundation for the full approximation of EU environmental legislation and improved protection and management of its unique natural heritage.

“The results of this project are truly impressive. The protected areas of the country are now benefiting from the findings of comprehensive studies on protected area revalorization, from new management plans and from the valuable data gathered on species and habitats. The total of 100 amendments to the Law on Nature Protection and the 17 new by-laws, enacted thanks to this project, have helped put in place a strong and efficient legal environment, bringing the country closer to the EU. Thanks to the many training events and public awareness activities, leaders and citizens are working together to protect our globally significant biodiversity and natural wealth.”

MR SASKO JORDANOV, SENIOR ADVISOR, MINISTRY OF ENVIRONMENT AND PHYSICAL PLANNING.



Management of Matka Canyon Natural Monument requires balancing tourism and nature protection. PHOTO: MICHAEL R APPLETON



About GEF

The GEF unites 182 countries in partnership with international institutions, non-governmental organizations (NGOs), and the private sector to address global environmental issues while supporting national sustainable development initiatives. Today the GEF is the largest public funder of projects to improve the global environment. An independently operating financial organization, the GEF provides grants for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. Since 1991, GEF has achieved a strong track record with developing countries and countries with economies in transition, providing \$9.2 billion in grants and leveraging \$40 billion in co-financing for over 2,700 projects in over 168 countries.

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Horsfield's tortoise (Testudo horsfieldii) in Sünt-Hasardag Reserve, Turkmenistan. ►

PHOTO: MICHAEL R APPLETON







Wetland rangers with a young pelican (*Pelecanus crispus*), Kazakhstan.
PHOTO: UNDP KAZAKHSTAN