Biodiversity Assessment for Belarus

Task Order under the Biodiversity and Sustainable Forestry IQC
(BIOFOR)

USAID Contract Number: LAG-01-99-00014-00

Submitted to:

USAID/Kiev
Kiev, Ukraine

Submitted by:

Chemonics International Inc.
Washington, D.C.
and
Environment International Ltd.
Seattle, Washington

August 2001

TABLE OF CONTENTS

Acronyms		i
Executive Summary		iii
SECTION I	Introduction	1
SECTION II	Status of Biodiversity	3
	A. Overview	3
	B. Major Landscapes, Ecosystems and Communities	4
	C. Species Diversity	5
	C1. Flora	6
	C2. Fauna	6
	D. Threats to Biodiversity	7
SECTION III	Status of Biodiversity Conservation	9
	A. Protected Areas	9
	B. Conservation Outside Protected Areas	10
	C. Ex-situ Conservation	13
SECTION IV	Strategic and Policy Framework	15
	A. Policy Framework	15
	B. Institutional Framework (Government, Academic, NGOs, Private Sector)	16
	C. Legislative Framework	17
	C1. National Legislation	17
	C2. International Conventions	18
	D. International Biodiversity Conservation Projects	18
SECTION V	USAID/Belarus	19
	A. Impact of USAID Program on Biodiversity	19
	A1. Small and Medium Enterprise Development	19
	A2. Independent Media Support Program	19
	A3. Rule of Law Programs	19
	A4. NGO Development Program	19
	A5. Agribusiness Volunteer Program	20
	B. Recommendations for USAID/Minsk	20
SECTION VI	Findings and Recommendations	21
	A. Summary of Findings	
21		
	B. Recommendations for Improved Biodiversity Conservation	22
ANNEX A	Sections 117 and 119 of the Foreign Assistance Act	A-1
ANNEX B	Scope of Work	B-1
ANNEX C	Map of Major Vegetation Types in Belarus	C-1
ANNEX D	List of Endangered Species: Red Data List for Belarus	D-1
ANNEX E	Map of Protected Areas in Belarus	E-1
ANNEX F	Bibliography	F-1

ACRONYMS

BEO	Bureau Environmental Officer
BIOFOR	Biodiversity, Sustainable Forestry and Climate Change IQC
CITES	Convention on International Trade in Endangered Species
EIA	Environmental Impact Assessment
GEF	Global Environmental Facility
MNF	Ministry of Natural Resources and Environmental Protection
MoF	Ministry of Forestry
SME	Small and Medium Enterprise Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme

Executive Summary

The Kyiv Regional USAID Mission initiated an assessment of the Regional Program's adherence to legislative guidelines for the protection of natural resources and biological diversity as prescribed in the Foreign Assistance Act (22 CFR 216) and subsequent amendments (Sec. 117 and Sec. 119). The Regional Mission contracted Chemonics International through the Biodiversity, Sustainable Forestry and Climate Change IQC ("BIOFOR") to undertake this assessment between April and July 2001. A local expert supported two international specialists working in Kyiv. This report is based entirely on a review of available literature, discussions with USAID staff and the experience of the team members; the team did not travel to Belarus.

The scope of work required the team to synthesize and analyze existing information and prepare a report that: (i) describes major ecosystems and species diversity of Belarus; (ii) identifies key landscape features for the conservation of biodiversity; (iii) describes current and potential threats to biodiversity conservation; (iv) analyzes policies, land use practices, and obstacles to biodiversity; (v) assesses national conservation policies, strategies and conventions management capacities; (vi) assesses the USAID program's potential impact on biodiversity; and (vii) identifies potential USAID opportunities to support biodiversity conservation

Major findings of the assessment include:

1. Biodiversity throughout Belarus has declined substantially in the past 100 years. Wetlands, bogs in particular, have undergone the most dramatic decline in overall coverage, largely from being converted to agriculture. Remaining bogs are inadequately protected today. However, data and information are mostly inadequate to determine distribution and condition of biodiversity at both a species and an ecosystem level.
2. With the possible exception of forest ecosystems, the protected area system is inadequate in ecological coverage and in administration. Hundreds of natural monuments and reserves of lesser significance have no staff or management plans.
3. Old laws may be inconsistent with newer laws and impedes enforcement of regulations. They also create confusion regarding roles and responsibilities for protection of biodiversity and natural resources. Belarus is party to many international environment agreements but capacity is often inadequate for implementing laws and international conventions.
4. NGOs and the public are not able to effectively participate in protection of biodiversity and natural resources due to inadequate resources and access to decision-making process. However, a high literacy rate and a generally well-educated population make it possible to use outreach and extension programs to effectively change how people view and use natural resources.

The assessment provides four general recommendations for the government of Belarus and other stakeholders for improving biodiversity conservation: (i) create a national biodiversity information clearinghouse and service center to collect and organize information about biodiversity and to provide all stakeholders with information products; (ii) increase protection of

remaining examples of the most threatened ecosystems; (iii) review and reconcile environmental laws and policies; strengthen environmental management and enforcement at all levels of government; and (iv) adopt policies that improve public access to and disclosure of environmental information; increase the transparency of the environmental review process and provide more opportunities for the public and NGOs to participate.

Three specific recommendations are made in the context of USAID/Belarus' strategic objectives: (i) consider expanding the NGO Development Program to support NGOs working in environmental protection, including conservation of biodiversity and natural resources. Focus areas should include activities to improve information dissemination regarding environmental issues; (ii) encourage reporting on environmental issues; consider providing seed money for the creation of a newsletter or a column in an existing newspaper that addresses environmental issues; and (iii) the Agribusiness Volunteer Program could expand farmer-to-farmer training related to environmental and natural resources issues, including integrated pest management, effective/safe use of agrochemicals, improved tillage techniques, and farm landscape management to improve wildlife habitat.

SECTION I

Introduction

This biodiversity assessment for Belarus addresses legislative guidelines for the protection of natural resources and biological diversity as prescribed in the Foreign Assistance Act (22 CFR 216) and subsequent amendments (see Annex A, Sec. 117 and Sec. 119). The Regional Mission contracted Chemonics International Inc. through the Biodiversity, Sustainable Forestry and Climate Change IQC (BIOFOR) to undertake biodiversity assessments in Belarus.

The scope of work (see Annex B) requirements to be met included the fielding of a team to investigate, synthesize, and analyze existing information on the status of biodiversity. This information was to be made into a report that:

- Describes major ecosystems, species endemism, and key habitats
- Identifies key landscape features and areas for the conservation of biodiversity
- Collates information on endangered and threatened species
- Describes current and potential threats to biodiversity conservation
- Analyzes policies, land use practices, pest/contamination sources, and transboundary obstacles to biodiversity
- Assesses national conservation policies, strategies, conventions and protected area management capacities
- Identifies bilateral, multilateral and U.S. Government (USG) efforts that support or significantly impact biodiversity conservation
- Assesses the USAID program's potential impact on biodiversity
- Identifies potential USAID opportunities to support biodiversity conservation

Biodiversity assessments were conducted in Moldova, Ukraine, and Belarus and included an in-country mission from April 17 to May 30, 2001; the team worked on the Belarus assessment from 22-30 May. Local experts supported two international specialists in each of the study countries and a third international expert was fielded to support the team's development of conclusions and recommendations. Given the political climate and USAID's declining investment in Belarus, the level of effort for the assessment there was scheduled for about half the level of effort given to Ukraine and Moldova. Furthermore, at the request of USAID, the team did not travel to Belarus; the Belarusian expert was brought to Kiev to consult with the team. The Belarus assessment team included:

- Richard Warner — team leader/natural resources management specialist
- Aron Borok — natural resources and institutional development specialist
- David Gibson — natural resources management specialist/BIOFOR project manager
- Vladimir Petukhov — Belarusian biodiversity specialist

The team conducted a document review, relying primarily on the English translations of the First National Report on the Implementation of the Convention on Biological Diversity (National Report) and the National Strategy and Action Plan for the Conservation and Sustainable Use of Biological Diversity (National Strategy). Although the team sought to maximize the use of available and accurate, quantitative data, the assessment depended largely on secondary research.

The authors wish to thank the many experts who provided information to the National Report, National Strategy and other reports that facilitated this assessment.

SECTION II

Status of Biodiversity

A. Overview

Belarus has a population of 10.3 million people and a land area of 207,600 km^2. The country is entirely landlocked, bordering Russia to the east, Lithuania and Latvia to the north, Poland to the west, and Ukraine to the south. The principal landscape features of Belarus are: 1) the Poozer'ye (lake lands) in the north; 2) Polessia (marshlands) in the south; and 3) the Minsk Highlands in the central section of the country. Two glacial periods (220-110 thousand years ago and 95-10 thousand years ago) influenced biodiversity of Belarus by radically transforming the landscape, flora, and fauna of most of the country. The most recent glacial period did not reach the Polessia region; therefore, the ecosystems in this region are more ancient than in the rest of the country.

Forest is the dominant vegetation type in about 35 percent of the country, with primarily coniferous forests in the north and broad-leafed forests in the south. Approximately half of the forests in Belarus are in the form of plantations — only fragmented tracts of primary forest are still intact.

The northern forests are an important habitat for a number of important fauna species, including more than 350 European bison (*Bison bonasus)*, which was reintroduced into Belarus in 1946 after disappearing in 1919. Photo by P.G. Kozlo.

Aquatic habitats are especially important for the conservation of biodiversity in Belarus. Bogs, marshes, and wetlands, particularly in the southern Polessia region, provide habitat for many unique threatened and endangered species. Moraine landscapes cover much of northern Belarus, forming rich lake and river ecosystems that also are important habitat for many aquatic species. These ecosystems are threatened throughout the country, either as a result of reclamation for agricultural purposes or by eutrophication and heavy metal contamination.

Information about biodiversity in Belarus is poorly developed in comparison to other European countries. Basic inventories of species are mostly nonexistent or out of date, and hence inadequate for many applications, including environmental impact assessments and a basic analysis of the extent of species endangerment. Information gaps are particularly acute for invertebrates. Inventories and descriptive materials for natural communities are insufficient for land-use planning and ecosystem management, yet an ecosystem approach is exactly what is most needed.

B. Major Landscapes, Ecosystems, and Communities

Forests and Shrub Lands. In Northern Belarus native forests are mostly coniferous woods, specifically pine, and in Southern Belarus broad-leafed (oak and hornbeam) woods are more prevalent. Other important components of forests include birch, fir, and black alder. In the middle of the 18th century, forests covered 74 percent of Belarus. By the middle of the 20th century, this number had fallen to approximately 27 percent. Forests today cover approximately 35 percent with the increase largely due to the planting of large-scale forest plantations; approximately 50 percent of remaining forests are plantations. Mature native forest stands account for only 5 percent of forests today. One adverse effect of current forest management practices is the severe decrease in the population of wood grouse in the Polessia region.

Bush and shrub ecosystems are spreading in Belarus despite the transformation of about 150,000 hectares of such areas into agricultural land over the last 30 years. Today, bushes and shrubs occupy approximately 3 percent of the country. Most bush and shrub areas are found either between individual farm plots, on abandoned agricultural land, or in clearings after harvesting of forests.

Aquatic Ecosystems. Bogs are the most threatened ecosystem in Belarus, having been subjected to widespread anthropogenic transformation. Due to large-scale land reclamation, the total area of bogs decreased from 4.1 million hectares (19.8 percent of Belarusian territory) in the late 1950s to 2.3 million hectares (11.1 percent) today. Approximately one-half of the remaining bogs are forested bogs. Another one-third is open bogs. The remaining bogs are classified as shrub-covered bogs or boggy meadows.

Of great importance to biodiversity in Belarus are the vast aquatic and wetland ecosystems that provide habitat to many globally important threatened and endangered species. More than 20,000 rivers exist in Belarus with a total length of 90,000 km. All rivers are part of either the Black Sea or the Baltic Sea watersheds. Major rivers include the Western Bug, Western Dvina, Niemen with its tributary Viliya, and Dnipro with its tributaries Berezina, Sozh, and Pripyat. Belarus has more than 10 thousand lakes with a total surface area of about 2,000 km^2. These are concentrated primarily in the northern part of the country. To regulate groundwater and reclaimed land, about 130 water reservoirs have been created in Belarus, covering a total area of 799 km^2. In addition, a significant part of the country is covered with a network of land-reclamation canals with a total length of 17,051 km.

The valley of the Prypiat River is an important route for migrating waterfowl. According to preliminary assessment, 50,000 geese, 30,000-50,000 widgeons, 70,000 ruffs, and a great number of other water and marsh species use this route every year during migration. The Dnipro River Valley is also important for migratory birds.

The Prypiat River Basin includes some of the most important wetlands in Europe. Photo by M. Ye. Nikiforov

Chernobyl. The 1986 Chernobyl accident resulted in radioactive contamination of 23 percent of the territory of the Republic. This radioactive contamination resulted in some damage, particularly to perennial flora. After the accident, the state created the Polessia State Radiation and Ecological Reserve, also known as the exclusion zone, on 215,500 hectares. Due to the recent lack of anthropogenic factors, there has been a trend of increasing species diversity in the Chernobyl exclusion zone. This is true for game animals, such as elk, wild boar, and roe deer, as well as threatened and endangered species, such as badger, sea eagle and the common crane.

C. Species Diversity

Belarus has a fairly diverse flora and fauna given its size in comparison to other European countries, as shown in Table II-1 below. Belarus does not possess any endemic species.

Table II-1. Species in Belarus by Taxon

Taxa	Total Number of Species	Number Included in the National Red Data Book of Belarus
Flora		
Angiosperms	1590	143
Gymnosperms	4	1
Ferns and Fern Allies	43	12
Mosses and Liverworts	431	15
Lichens	477	17
Algae	2232	9
Fungi	~7000	17
Fauna		
Mammals	73	14
Birds	298 (225 nesting, 73 migratory)	75
Reptiles	7	2
Amphibians	12	1
Fish	62	5
Invertebrates	>20,000	85

The status of information in Belarus makes estimates of extinction and endangerment difficult and the numbers reported somewhat unreliable. Many of the listings in the National Red Data Book of Belarus (Red Book) show locations of species based on data that are 10 or more years old (see Annex D for list of endangered species of Belarus as reported by IUCN/WCMC).

C1. Flora

The vegetation of Belarus includes approximately 11,500 species. Vascular plant flora includes 1,638 species. There are 107 indigenous species of woody flora species, including 28 trees. There are 214 plant species included in the National Red Book. These include 171 higher plants and 43 lower plants.

Over the past 100 years, it is estimated that 317 invasive plant species have been introduced in Belarus, 120 of which have been discovered in the past 10 years. Little information seems to exist regarding the extent of the problems caused by invasive species.

C2. Fauna

The fauna of Belarus is characteristic of European, Siberian, and Mediterranean influences. In total, there are 453 species of vertebrate animals and more than 20,000 species of invertebrates.

The aquatic warbler (*Acorcephalus pludicola*) is a globally rare species found in the mire habitats of the polessia landscape. More than half the world's population nest in Belarus. Photo by A.V. Kozulin

The National Red Book includes 97 vertebrate species and 85 invertebrate species. A few animal species, such as the Central European wood cat, desman, and bustard, have disappeared from the territory of Belarus and were therefore excluded from the second edition of the National Red Book (1993). A number of fauna species, particularly birds such as the aquatic warbler (*Acrocephalus paludicola*), have either a European or global protected status, and are protected by international conventions.

Migratory species include a number of birds and bats. Some migratory birds nest within Belarus (104 species), whereas others only fly in transit during seasonal migration (22 species).

Poor hunting management has caused significant reductions in abundance of many fauna species, particularly of large predators, such as brown bear and lynx. Uncontrolled hunting has also caused a sharp reduction or disappearance of other valuable species (otter, elk, wood grouse, and beaver).

Introduced and invasive fauna species in Belarus include 4 game species: raccoon dog (*Nyctereutes procyonoides*), common raccoon (*Procyon lotor*), American *mink (Mustela*

lutreola), and muskrat (*Ondatra zibethica*). The American mink has crowded the native European mink out of much of its habitat. Fourteen species of fish have been introduced into the water reservoirs of Belarus. In 1997 the American crayfish (*Orconectes limosus*) invaded the western part of Belarus from Western Europe.

The creation of a network of water reservoirs, draining of wetlands and bogs, industrial pollution, and introduction of invasive fish species have changed the composition of fish diversity, particularly in the Polessia where fish catch has dramatically declined in recent years. Over the last 50-100 years, the abundance of fishes of commercially valuable species has decreased while the abundance of fishes of low-value species has increased.

Little is known about the distribution and conservation status of invertebrates. With the exception of entomologists, there is a lack of invertebrate specialists. Even regarding insects, the necessary resources are lacking to conduct adequate inventories and monitoring.

D. Threats to Biodiversity

The most significant historical impacts to the biodiversity of Belarus were the result of transformation of large natural territories for human use, particularly for agriculture. The collectivization of land during Soviet rule led to substantial changes in the spatial structure and functional features of the vegetation cover in Belarus. Reclamation of wetlands and clearing forests for agriculture and road construction continue to threatened biodiversity. Other threats that impact most ecosystems include poaching, collecting of plants for medicinal and horticultural use, expanding populations of exotic species, and pollution from industrial, urban and agricultural sources.

Invasive species are likely posing a problem in Belarus but more information is needed to evaluate their impact. One possible cause for the decline in commercially important fish is the increasing growing dominance of invasive fish species. While there is information regarding the number of invasive flora species, there is little available data regarding their distribution and impacts.

The lack of ecological information, inefficient legal and regulatory mechanisms, and absence of economic instruments to encourage conservation aggravate these impacts.

Forests and Shrub Lands. Additional development of forest plantations threaten to further reduce the area coverage of native broad-leafed (oak, hornbeam, etc.) and fir forests while increasing the coverage of low-diversity pine forests managed primarily for timber production. Other threats to biodiversity in forests and shrub lands include converting forests for pastureland, grazing and recreational use, and poorly regulated hunting of game.

Aquatic Ecosystems. Wetlands land reclamation for agriculture and road construction — often attended by peat extraction (for fuel or as soil additive) — continue to threaten wetland habitats in Belarus.

Reclamation of bogs, wet meadows and other wetlands, and the introduction of advanced cultivation technology destroyed vast natural areas. In the 1960s and 1970s, more than 2.6

million hectares of bogs and other wetlands, especially in the southern Polessia region, were drained for agricultural purposes. The resulting fragmentation of wetland ecosystems has significantly decreased the ability for natural maintenance of biodiversity and has facilitated the spread of invasive species. Care needs to be taken to ensure that recent efforts to lease and privatize land in Belarus and future road construction do not lead to further loss of wetland ecosystems.

The discharge of sewage and agricultural runoff into rivers in Belarus has resulted in eutrophication (nutrient-enhanced blooms of algae and resultant oxygen depletion) in aquatic ecosystems, resulting in deleterious changes in flora and fauna composition. Industrial pollution and surface runoff that contribute suspended materials, oil products and heavy metals, exacerbate the problems for aquatic ecosystems. Chemical wastes on industrial sites, military lands and perhaps some agricultural lands are having negative impacts on soil ecology, as well as groundwater, rivers and lakes. Construction of dams and reservoirs is a potential threat to riverine systems.

SECTION III

Status of Biodiversity Conservation

A. Protected Areas

There are 86 nationally protected areas in Belarus, including one nature reserve, four national parks, and 82 other reserves. The total area of these areas is 898,530 hectares, or 4.3 percent of the Belarusian territory. In addition, Belarus has 526 local reserves covering approximately 400,000 hectares, bringing the total percentage of protected areas to approximately 6.2 percent.

The single nature reserve is strictly protected for nature conservation purposes; the only activities allowed are related to scientific research and inventory of flora and fauna. National parks combine conservation with scientific, recreational, and economic uses. Activities allowed within national parks include:

- Conservation of unique natural formations and ecosystems
- Ecological awareness and education
- Scientific research
- Development and introduction of sustainable nature conservation and use methodologies
- Preservation of cultural heritage (monuments of history, architecture, archaeology, ethnography facilities, etc.)
- Recreational activities
- Agriculture and forest harvesting using ecologically safe technologies

According to national legislation, other reserves are set aside for the purpose of conservation and restoration of one or several types of natural resources and maintenance of general ecological balance. These are divided into four categories, depending on their purpose:

- Landscape or complex reserves designed for conservation and restoration of special valuable natural landscapes and complexes
- Biological reserves designed for conservation and restoration of plant and animal species with economic, scientific and/or cultural value, or with threatened and endangered status

- Paleontologic reserves designed for conservation of fossil formations (as of yet, there are no paleontologic reserves in Belarus)

- Hydrological reserves designed for conservation and restoration of valuable aquatic systems

According to the law "On Specially Protected Natural Areas," the administration of the president of Belarus manages and controls protected areas with national importance (nature reserves and national parks). The Ministry of Forestry (MoF) and the Ministry of Natural Resources and Environmental Protection (MNREP) share responsibility for other protected areas. The MoF is responsible for administration of these areas, whereas the MNREP is responsible for monitoring illegal activities (poaching, illegal forest harvesting, etc.) and dispensing fines.

The challenges of coordinating responsibility for protected area's management have resulted in inconsistent protection, monitoring, and enforcement. Whereas protected areas under the presidential administration have the resources necessary to support permanent staff, reserves, and natural monuments, the management of the MoF and MNREP lack the necessary financial or technical resources to conduct monitoring, inventory, or research in these areas. In addition, scientists from the Academy of Sciences are often denied access to conduct research in nature reserves and natural parks.

According to the National Report, the current network of protected areas of national importance does protect the full range of ecosystems in Belarus. Whereas forests are well represented in protected areas, nonforest ecosystems are poorly represented. Species-rich river floodplains, for example, are inadequately protected. In terms of landscape diversity, only 59 out of 105 landscape types are protected in nature reserves and natural parks. There is a notable lack of protected areas within the East Belarusian province, where secondary moraine landscapes are important for biodiversity.

Substantial land is managed by the military, including large tracts of intact, native forest and bog ecosystems. These military lands represent a tremendous opportunity to expand the protected areas system of Belarus.

B. Conservation Outside Protected Areas

Even a well-designed and integrated protected area system will be insufficient to ensure the conservation of species and habitats. Seasonally migratory animals (migratory birds, bats, etc.), or species that normally range over large distances (most large mammals) will be among those insufficiently protected by parks. Many endemic species of plants and animals may also remain outside protected areas. Therefore, other conservation tools will be necessary to ensure the protection of biodiversity throughout the country.

Environmental impact assessments (EIA) provide an important opportunity for protecting biodiversity outside of the national parks. Belarus approved the Law "On State Ecological Expertise" in 1993. Under the law, projects must undergo an assessment that includes the project's impact on protected areas, rare plant and animal species on the project site, and other environmental parameters. The ministry or institution proposing the project typically conducts the assessment. MNREP has the authority to cancel a project due to negative environmental impacts. However, it appears that many projects do not undergo assessment, even within national parks and other protected territories.

The MoF is responsible for planting, protection and utilization of forest resources on approximately 80 percent of the forests in Belarus. The remaining forest is under the management of various institutions (Table III-1). Recently, there has been a proposal to create an agency outside of the MoF whose responsibility would be solely forest harvesting. While the MoF is responsible for ensuring that forests are used sustainably, there are reports of unpermitted harvesting of timber for export.

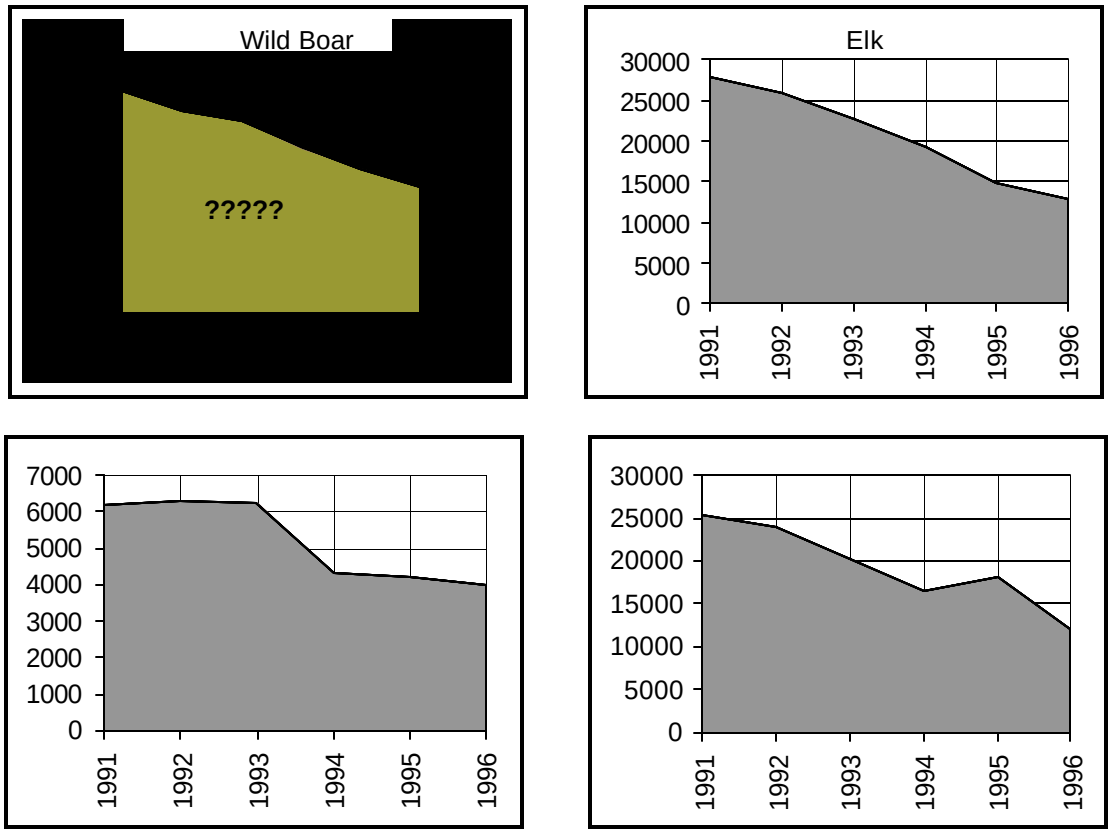
The red deer, also called elk or wapiti (*Cervus elaphus*) was reintroduced to Belarus in the middle of last century after it had been extirpated. This species travels substantial distances, moving into and out of protected areas. Diverse protection strategies are needed to maintain populations of red deer in Belarus. Photo by I.I. Byshnev

Table III-1. Management of Forests in Belarus

Managing Agency	Area of managed resources (thousand hectares)	Area covered with forest (thousand hectares)
Ministry of Forestry	6,733.1 (77.6%)	5,862.2 (79.5%)
Ministry of Defense	437.4 (5.0%)	226.6 (3.1%)
Ministry of Agriculture and Food	942.7 (10.9%)	898.6 (12.2%)
Presidential Administration	242.3 (2,8%)	211,0 (2.9%)
Ministry on Emergencies	215.4 (2.5%)	82.5 (2.5%)
Executive Committees of Councils of People's Deputies	43.9 (0.5%)	35.1 (0.5%)
Ministry of People's Education	24.5 (0.3%)	22.2 (0.3%)
Institute of Forestry (National Academy of Sciences)	36,8 (0,4%)	33,5 (0,4%)
TOTAL	8 676,1	7 371,7

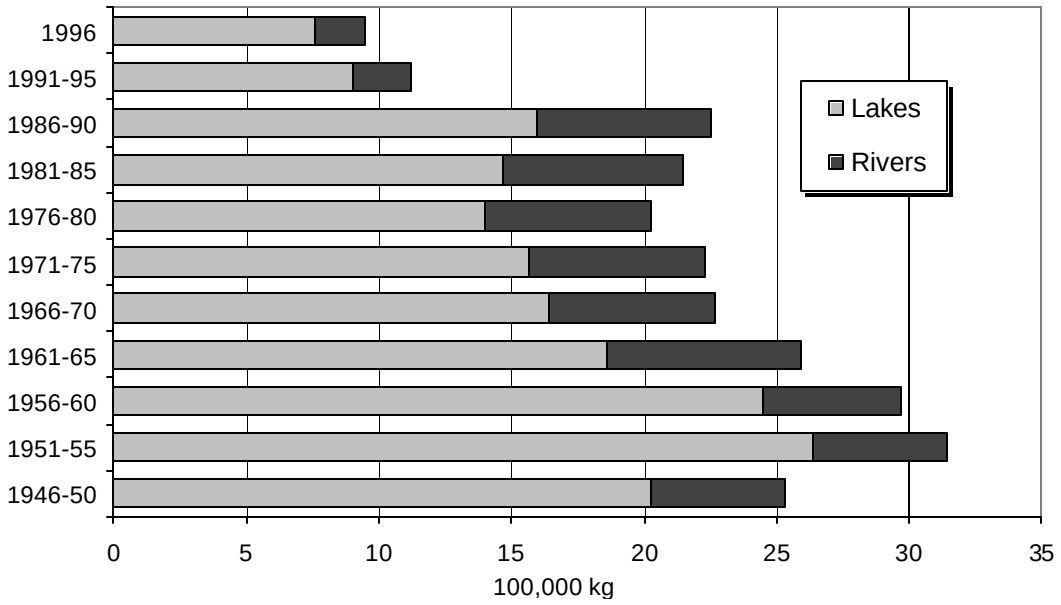
The Department of Hunting under the Ministry of Forestry has responsibility for permitting and control of hunting in Belarus. Territorial and local units of the department conduct annual inventories of hunting species to determine harvest limits. Regional and local hunting societies assist with these inventories. The main role of the Department of Hunting is the maintenance of the game animal population, but monitoring of poaching is not effective. As a result of ineffective management, populations of ungulates (wild boar, elk, and deer) and beaver fell significantly between 1991 and 1996 (see Figure III-1). The National Strategy for Belarus recognized the need for improvement of the system of hunting management, including better regulation of hunting seasons and more sustainable hunting limits.

Figure III-1. Population Trends for Game Species in Belarus, 1991-1996



The Fish Protection Committee under the MNREP is responsible for management of fish resources. Since the 1950s, commercial fish catch has fallen dramatically (see Figure III-2). As with hunting, monitoring of poaching activities is insufficient. In addition, invasive species of fish, industrial and agricultural pollution, and deforestation-related erosion have caused a catastrophic reduction in the population of native fish species.

Figure III-2. Commercial Fish Catch in Belarus, 1946-1996



C. Ex-situ Conservation

An important way for conservation and restoration of rare species of plants is ex-situ conservation (outside their natural setting) in botanical gardens, zoos, genetic collections, etc. The Central Botanic Garden of the Academy of Sciences of Belarus has more than 9,000 species, forms, and types of trees and bushes, including ornamental, fodder, aromatic and medicinal plants. This is virtually the only institution in Belarus that is actively engaged in research on rare and threatened species of plants, including their restoration and reintroduction.

Other collections of plants include those in the following institutions:

- Belarusian Agricultural Academy
- Zhornovo Forestry Experimental Station
- Belarusian State University
- Belarusian Technological University

The Belarusian Research Institute of Fruit-Growing has a collection of more than 300 specimens and 1,500 selected hybrids of wild species and types of apple trees that have been grown by crossing wild species with cultivated types. This institute's collections also include many types of pears, plums, cherries, crab cherries, apricots, grapes, walnuts, and other fruit and berry plants.

SECTION IV

Strategic and Policy Framework

A. Policy Framework

Environmental and natural resource policy in Belarus reflects the national laws and international agreements described below. The National Strategy and Action Plan for the Conservation and Sustainable Use of Biological Diversity in the Republic of Belarus (National Strategy) outlines the policy and investment strategies for biodiversity conservation. The government of Belarus approved the BSAP in June 1997.

Major themes of the National Strategy include:

- Assuring maximum possible conservation of biological diversity
- Attaining sustainable and nonexhaustive use of natural resources using a comprehensive and harmonious approach that combines protection and use of the most important components of biological diversity
- Protection of unique large areas of ecosystems representative of Belarus that have important significance for conservation of biological diversity and natural heritage of Europe
- Optimization of economic activities in ways that will conserve biological diversity
- Ecological education and awareness

The National Strategy is divided into the following categories:

- Formulation of state policies and improvement of legislation in the field of conservation and sustainable use of biodiversity
- Improvement of state management and control over conservation and use of biodiversity
- Creation of ecological and economic background for the conservation of biodiversity and the regulation of its use
- Development of fundamental and applied science in the fields of conservation biology and use of biodiversity
- Development of a system of protected areas and measures for the protection of rare and endangered species

- Improvement of scientific and technical activities and optimum consideration of natural resources in social and economic activities
- Ecological education, training and promotion
- Attraction of capital investments and technical resources

B. Institutional Framework (Government, Academic, NGOs, Private Sector)

The Ministry of Natural Resources and Environmental Protection (MNREP) is the principal executive body responsible for conservation of the environment. The MNREP is responsible for developing environmental protection plans, monitoring, conducting and reviewing EIAs, coordinating policies for environmental protection and use of natural resources, implementing international conventions related to environmental protection, and providing information to the public and the government on environmental conditions. The MNREP lacks the resources and political clout needed to implement its mandate, particularly as it applies to other ministries and state institutes that have direct impact on the environment.

Fir forest and stream. Photo by M. Ye. Nikiforov

The Ministry of Forestry (MoF) is responsible for both afforestation and forest harvesting on approximately 80 percent of Belarus' forests. Management of the remaining forests is split between several other ministries, the presidential administration, and the Institute of Forests under the National Academy of Sciences. Recently, there have been plans in Belarus to create a separate organization for forest harvesting, but this has not come to fruition. The MoF is also responsible for managing many protected areas that are not under control of the presidential administration.

Protection of fish and aquatic resources is subject to the control of the Committee for Fish Protection under the MNREP. However, fish protection within national parks and nationally important nature reserves falls to the presidential administration. Management of the Belarus' 26 fisheries falls to the State Fish Administration under the Ministry of Agriculture.

There has not been a significant attempt to decentralize natural protection authority to the territorial or local level. Within the MNREP, each territory, as well as the City of Minsk, has a committee on natural resources and environmental protection. However, these committees have little autonomy from the national level and marginally increase the capacity of MNREP.

Academic and research institutions in Belarus are a critical part of the institutional support for biodiversity protection. They train scientists, conduct research, publish natural history accounts and status reports, manage scientific collections and archives, and serve on NGO committees and commissions. Among the most important institutions are:

- National Academy of Sciences of the Republic of Belarus, including:
  - Institute of Zoology
  - Institute of Experimental Botany
  - Institute of Forests
  - Institute of Problems of Use of Natural Resources and Ecology
  - Institute of Microbiology
- Academy of Agrarian Sciences
- Belarusian Research Center "Ecology"
- Belarusian State University
- Belarusian Technological University
- Research institutions under the Ministry of Agriculture, Ministry of Education and others

Although universities and research institutions provide a critical source of professional biologists, they fall far short of meeting current and future demand. There are too few biologists to adequately conduct research, inventory biodiversity, prepare and evaluate physical and management plans, and assist with independent monitoring of government-run conservation programs.

More then 50 environmental nongovernment organizations (NGOs) are registered and operative in Belarus. In many cases, however, they are without sufficient financial support to implement programs. There do not appear to be any NGOs with permanent, paid staff members. Under the MNREP there are several "public nature protection organizations" that are quasigovernmental though apparently managed like NGOs. They include, for example, the Belarusian Society of Nature Protection, the Youth Ecological Movement "Belaya Rus," and the Independent Belarusian Ecological Science and Production Association.

C. Legislative Framework

C1. National Legislation

Major national legislation of the Republic of Belarus related to conservation of natural resources and biodiversity includes:

- Law on Environmental Protection (1992)
- Law on Environmental Impact Assessment (1993)
- Law on Specially Protected Natural Territories and Objects (1994)
- Law on Taxes for Natural Resource Use (1992)
- Law on Protection and Use of the Animal World (1996)

According to the National Strategy, there is a need to develop additional laws, including a Law for Use and Protection of Flora and a Law on Improvement and Restoration of Natural

Resources. In addition, the Strategy recognizes a need to revise and amend the Law on Protected Natural Territories and Objects, as well as to update the Penal Code to include sections on "Ecological Crimes" and "Ecological Offenses."

Several laws that were in existence before the collapse of the Soviet Union, including the Water, Land and Forestry Codes, are still used in Belarus. Apparently, these laws are still valid unless they are in contradiction with the Constitution and Laws of the Republic of Belarus. However, it is not apparent whether any legal analysis has been done to determine the extent of this contradiction and the necessary steps to bring these laws into accordance with the present constitution.

C2. International Conventions

The national laws discussed above are written, in part, to address requirements of international agreements (see box below). To implement these international agreements and new laws, the MNREP, other governmental agencies, and the private sector face substantial challenges. Implementation will be expensive and requires a long-term plan to train and deploy people with the required expertise.

D. International Biodiversity Conservation Projects

It appears that the international community is investing very little toward biodiversity conservation in Belarus. The World Bank's Global Environmental Facility (GEF) Enabling Activities funds, implemented through the United Nations Environment Programme (UNEP), have supported preparation of the National Strategy. UNEP also supported a GEF project for the development of the bilateral Polish-Belarusian Beloveshkaya Puscha Biosphere Reserve. The United Nations Development Programme (UNDP) supported a GEF-funded project for the Protection of the Pripyat River. The Swiss government has funded a project to improve water treatment systems in the city of Selogorsk. A few small grants from bilateral agencies have supported local NGOs working on biodiversity projects.

Major Environmental Agreements

Belarus has ratified or signed the major environmental agreements related to natural resources, including:

- Convention on Biological Diversity (RIO) — Ratified
- Convention on Wetlands of International Importance as Waterfowl Habitat (Ramsar) — Ratified
- Convention on International Trade in Endangered Species (CITES) — Ratified

The Michael Otto Foundation for Environmental Protection, a private German foundation, has set up several projects in the Prypiat River region. These projects include a survey of the sedge bogs in the Polessia, determination of the status of the globally threatened aquatic warbler, and the creation of a large protected area in the Prypiat.

SECTION V

USAID/Belarus

A. Impact of USAID Program on Biodiversity

USAID's assistance program in Belarus supports initiatives through non-governmental entities that encourage political and economic reforms.

A1. Small and Medium Enterprise Development

The Small and Medium Enterprise (SME) program has operated since 1993. The program has helped to transfer about 1,900 businesses to private ownership, which has encouraged competitive practices. The program is expanding from trade and service enterprises to include industry, construction, agribusiness and housing services. Special programs have focused on empowering women and improving healthcare.

Impacts of these programs on biodiversity in Belarus have likely been minor. However, as the program addresses more agriculture enterprises, there are opportunities to promote businesses that improve environmental performance. For example, biodiversity may benefit from businesses promoting minimum till and use of modern chemical, which are generally less toxic than those currently used. A more aggressive program might target development of eco-friendly businesses operating in and around protected areas.

A2. Independent Media Support Program

The Independent Media Support Program provides technical and legal support to independent media and media associations. The program improves access to foreign news service via the Internet, thereby broadening the scope of news in the country. Improved access to information, while not directly affecting biodiversity, creates a better-informed public. This program could more directly support biodiversity by increasing coverage of environmental news.

A3. Rule of Law Programs

Rule of law program supports legal advice centers and professional associations, including those that support trade unions. The program has funded workshop for professionals and a “Street Law” program to educate ordinary citizens on citizenship skill and the rule of law. The rule of law program may indirectly support biodiversity efforts by encouraging greater participation by better-informed NGOs and the public.

A4. NGO Development Program

Since 1994, USAID in Belarus has been helping social service and public policy NGOs with training, technical assistance and seed grants. More than 125 NGO representatives from NGOs have been trained in NGO development. Biodiversity conservation will be positively impacted to the extent that this program strengthens environmental NGO capacity.

A5. Agribusiness Volunteer Program

The farmer-to-farmer program brings U.S. expert volunteers to Belarus to work with counterparts in private agribusiness enterprises, agricultural reform, and rural environmental management. This program provides farmers with training on proper pesticide and fertilizer application, anti-erosion tilling practices, and other rural environmental improvement techniques. This program could have positive or negative impacts on the environment and biodiversity. Positive impacts on biodiversity will likely result from improved tillage and use of chemicals. On the other hand, care should be taken not to introduce improved technologies for land reclamation or other practices harmful to natural resources.

B. Recommendations for USAID/Minsk

- *NGO development*. As has been set out in the USAID/Minsk assistance program, the NGO development program should be extended to support NGOs working in the field of environmental protection, including conservation of biodiversity. As a long-term goal, this program should strive for self-sufficiency of NGOs without the assistance of major international donations and grants.

- *Independent media.* Encourage reporting on environmental issues. Consider providing seed money for the creation of a newsletter addressing environmental issues, or for creation of a biodiversity information clearinghouse available for use by scientists, NGOs, government officials, and the public at large.

- *Small-scale privatization.* An analysis should be done to ensure that any enterprises supported by USAID are promoting smart environmental practive and are fitted with proper environmental technology, particularly where there are potential impacts to aquatic ecosystems. Construction industries supported by USAID should acquire timber products that have been harvested in a sustainable manner.

SECTION VI

Findings and Recommendations

A. Summary of Findings

- Biodiversity throughout Belarus has declined substantially in the past 100 years. Forested ecosystems are perhaps the least affected, and best managed and protected. However, even the forests require broader protection and would benefit from an ecosystem management approach.

- Data and information are mostly inadequate to determine distribution and condition of biodiversity at both a species and an ecosystem level. Wide variations in management objectives, reporting formats, and research protocols make comparative analysis difficult.

- Wetlands, bogs in particular, have undergone the most dramatic decline in overall coverage, largely from being converted to agriculture. Remaining bogs are inadequately protected today.

- With the possible exception of forest ecosystems, the protected area system is inadequate in ecological coverage and in administration. Hundreds of natural monuments and reserves of lesser significance have no staff or management plans.

- NGOs are not able to effectively participate in protection of biodiversity and natural resources. Lack of opportunity and insufficient resources hampers the NGO community's ability to work cooperatively with the government for environmental protection. Available data are inadequate for people to gauge how their lives may be impacted by decisions made by government and industries.

- Some laws from the Soviet era have yet to be revised or replaced with laws specific to Belarus. The old laws may be inconsistent with newer laws and create confusion regarding roles and responsibilities for protection of biodiversity and natural resources.

- Implementation and enforcement of laws and regulations is inadequate. Low wages and inadequate resources hinder enforcement of laws intended to protect natural resources. Belarus is party to many international environment agreements, but capacity for implementation is inadequate.

- A high literacy rate and a generally well-educated population make it possible to use outreach and extension programs to effectively change how people view and use natural resources.

B. Recommendations for Improved Biodiversity Conservation

- Support creation of a national biodiversity information clearinghouse and service center to collect and organize information about biodiversity and to provide all stakeholders with information products.

- Increase protection of remaining examples of the most threatened ecosystems including wetlands, bogs, and moraine ecosystems. Identify and support national policies that promote establishment of conservation easements and community set-asides for fragile areas that should be protected or reclaimed.

- Adopt policies that improve public access to and disclosure of environmental information. Increase the transparency of the environmental review process and opportunities for the public and NGOs to participate.

- Review and reconcile environmental laws. Consider legislation that gives more authority to local governmental agencies. Strengthen environmental management and enforcement at all levels of government.

ANNEX A

Sections 117 and 119 of the Foreign Assistance Act

Foreign Assistance Act, Part I, Section 117 — Environment and Natural Resources

Sec. 117\71\ Environment and Natural Resources

(a) The Congress finds that if current trends in the degradation of natural resources in developing countries continue, they will severely undermine the best efforts to meet basic human needs, to achieve sustained economic growth, and to prevent international tension and conflict. The Congress also finds that the world faces enormous, urgent, and complex problems, with respect to natural resources, which require new forms of cooperation between the United States and developing countries to prevent such problems from becoming unmanageable. It is, therefore, in the economic and security interests of the United States to provide leadership both in thoroughly reassessing policies relating to natural resources and the environment, and in cooperating extensively with developing countries in order to achieve environmentally sound development.

\71\ 22 U.S.C. 2151p. Sec. 117 was redesignated from being sec. 118 by sec. 301(1) of Public Law 99-529, resulting in the creation of two sections 117. Sec. 301(2) of Public Law 99-529 (100 Stat. 3014) further deleted subsec. (d) of that section, which dealt with tropical forests, and then sec. 301(3) of Public Law 99-529 added a new section 118 entitled “Tropical Forests”. This section, as added by sec. 113 of Public Law 95-88 (91 Stat. 537) and amended by sec. 110 of Public Law 95-424 (92 Stat. 948) and sec. 122 of Public Law 96-53 (93 Stat. 948), was further amended and restated by sec. 307 of the International Security and Development Cooperation Act of 1981 (Public Law 97-113; 95 Stat. 1533). This section previously read as follows: “Sec. 118. Environment and Natural Resources--
(a) The President is authorized to furnish assistance under this part for developing and strengthening the capacity of less developed countries to protect and manage their environment and natural resources. Special efforts shall be made to maintain and where possible restore the land, vegetation, water, wildlife and other resources upon which depend economic growth and human well-being especially that of the poor.”

(b) In carrying out programs under this chapter, the President shall take into consideration the environmental consequence of development actions.” See also sec. 534 of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1990 (Public Law 101-167; 103 Stat. 1228), as amended, relating to “Global Warming Initiative. ” See also sec. 533 of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1991 (Public Law 101-513; 104 Stat. 2013), as amended, relating to “Environment and Global Warming.” See also sec. 532 of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1993 (Public Law 102-391; 106 Stat. 1666), relating to “Environment.”

(b) In order to address the serious problems described in subsection (a), the President is authorized to furnish assistance under this part for developing and strengthening the capacity of developing countries to protect and manage their environment and natural resources. Special

efforts shall be made to maintain and where possible to restore the land, vegetation, water, wildlife, and other resources upon which depend economic growth and human well-being, especially of the poor.
(c)(1) The President, in implementing programs and projects under this chapter and chapter 10 of this part,\72\ shall take fully into account the impact of such programs and projects upon the environment and natural resources of developing countries. Subject to such procedures as the President considers appropriate, the President shall require all agencies and officials responsible for programs or projects under this chapter—

\72\ Sec. 562 of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1991 (Public Law 101-513; 104 Stat. 2026), added a new chapter 10 to part I of this Act, providing for long-term development in sub-Saharan Africa, and made a conforming amendment by inserting “and chapter 10 of this part” here.

(A) to prepare and take fully into account an environmental impact statement for any program or project under this chapter significantly affecting the environment of the global commons outside the jurisdiction of any country, the environment of the United States, or other aspects of the environment which the President may specify; and
(B) to prepare and take fully into account an environmental assessment of any proposed program or project under this chapter significantly affecting the environment of any foreign country. Such agencies and officials should, where appropriate, use local technical resources in preparing environmental impact statements and environmental assessments pursuant to this subsection.
(2) The President may establish exceptions from the requirements of this subsection for emergency conditions and for cases in which compliance with those requirements would be seriously detrimental to the foreign policy interests of the United States.

Foreign Assistance Act, Part I, Section 119 — Endangered Species

Sec. 119\75\ Endangered Species

(a) The Congress finds the survival of many animal and plant species is endangered by overhunting, by the presence of toxic chemicals in water, air and soil, and by the destruction of habitats. The Congress further finds that the extinction of animal and plant species is an irreparable loss with potentially serious environmental and economic consequences for developing and developed countries alike. Accordingly, the preservation of animal and plant species through the regulation of the hunting and trade in endangered species, through limitations on the pollution of natural ecosystems, and through the protection of wildlife habitats should be an important objective of the United States development assistance.

\75\ 22 U.S.C. 2151q. Sec. 119, pars. (a) and (b) were added by sec. 702 of the International Environment Protection Act of 1983 (title VII of the Department of State Authorization Act, Fiscal Years 1984 and 1985, Public Law 98-164; 97 Stat. 1045).

(b) \75\ In order to preserve biological diversity, the President is authorized to furnish assistance under this part, notwithstanding section 660,\76\ to assist countries in protecting and maintaining wildlife habitats and in developing sound wildlife management and plant conservation programs.

Special efforts should be made to establish and maintain wildlife sanctuaries, reserves, and parks; to enact and enforce anti-poaching measures; and to identify, study, and catalog animal and plant species, especially in tropical environments.
\76\ Section 533(d)(4)(A) of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1990 (Public Law 101-167; 103 Stat. 1227), added “notwithstanding section 660” at this point.

(c) \77\ Funding Level.--For fiscal year 1987, not less than $2,500,000 of the funds available to carry out this part (excluding funds made available to carry out section 104(c)(2), relating to the Child Survival Fund) shall be allocated for assistance pursuant to subsection (b) for activities which were not funded prior to fiscal year 1987. In addition, the Agency for International Development shall, to the fullest extent possible, continue and increase assistance pursuant to subsection (b) for activities for which assistance was provided in fiscal years prior to fiscal year 1987.

\77\ Pars. (c) through (h) were added by sec. 302 of Public Law 99- 529 (100 Stat. 3017).

(d) \77\ Country Analysis Requirements.--Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of-

(1) the actions necessary in that country to conserve biological diversity, and

(2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.

(e) \77\ Local Involvement.--To the fullest extent possible, projects supported under this section shall include close consultation with and involvement of local people at all stages of design and implementation.

(f) \77\ PVOs and Other Nongovernmental Organizations.-- Whenever feasible, the objectives of this section shall be accomplished through projects managed by appropriate private and voluntary organizations, or international, regional, or national nongovernmental organizations, which are active in the region or country where the project is located.

(g) \77\ Actions by AID.--The Administrator of the Agency for International Development shall-

(1) cooperate with appropriate international organizations, both governmental and nongovernmental;
(2) look to the World Conservation Strategy as an overall guide for actions to conserve biological diversity;
(3) engage in dialogues and exchanges of information with recipient countries which stress the importance of conserving biological diversity for the long-term economic benefit of those countries and which identify and focus on policies of those countries which directly or indirectly contribute to loss of biological diversity;
(4) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity;
(5) whenever possible, enter into long-term agreements in which the recipient country agrees to protect ecosystems or other wildlife habitats recommended for protection by

relevant governmental or nongovernmental organizations or as a result of activities undertaken pursuant to paragraph, and the United States agrees to provide, subject to obtaining the necessary appropriations, additional assistance necessary for the establishment and maintenance of such protected areas;

(6) support, as necessary and in cooperation with the appropriate governmental and nongovernmental organizations, efforts to identify and survey ecosystems in recipient countries worthy of protection;

(7) cooperate with and support the relevant efforts of other agencies of the United States Government, including the United States Fish and Wildlife Service, the National Park Service, the Forest Service, and the Peace Corps;

(8) review the Agency's environmental regulations and revise them as necessary to ensure that ongoing and proposed actions by the Agency do not inadvertently endanger wildlife species or their critical habitats, harm protected areas, or have other adverse impacts on biological diversity (and shall report to the Congress within a year after the date of enactment of this paragraph on the actions taken pursuant to this paragraph);

(9) ensure that environmental profiles sponsored by the Agency include information needed for conservation of biological diversity; and

(10) deny any direct or indirect assistance under this chapter for actions which significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas.

(h) \77\ Annual Reports.--Each annual report required by section 634(a) of this Act shall include, in a separate volume, a report on the implementation of this section.

ANNEX B

Scope of Work

The Contractor shall perform the following activities:

A. Hold meetings with the Bureau Environmental Officer (BEO) of USAID's E&E Bureau in Washington, the E&E Desk Officers, and others suggested by the Desk Officers to ensure full understanding of EE's program in Ukraine, Belarus and Moldova, USAID environmental procedures and purpose of this assignment. These discussions shall include any policy decisions and approaches which the BEO and Agency Environmental Advisor are taking as per their authority under Reg. 216, which may not be explicit in general legal documentation. The Contractor also shall meet with a representative of EE/EEST environment and energy divisions familiar with the USAID program as well as with a representative of the Bureau's democracy and governance office to cover to civil society-related issues. The Contractor also shall include meetings with relevant World Bank officials and with appropriate international NGOs to obtain current information on relevant studies, projects and initiatives.

B. The Contractor shall review and become familiar with materials provided by USAID and other important literature that is available on the internationally funded Global Environmental Facility activities on international waterways, including the Danube, the Dnipro and Black Sea programs.

C. The contractor will also become familiar with the Moldova and Ukraine Programmatic Environmental Assessments that have been done for the agricultural sector and should be able to use them as a major resource.

D. Field a team to investigate and synthesize existing information and analyze the status of each country's biodiversity. The written report of this investigation shall include description of:

   1. Major ecosystem types highlighting important, unique aspects of the country's biodiversity, including important endemic species and their habitats.

   2. Natural areas of particular importance to biodiversity conservation, such as key wetlands, remaining old-growth or coastal areas critical for species reproduction, feeding or migration, if relevant.

   3. Plant and animal species which are endangered or threatened with extinction. Endangered species of particular social, economic or environmental importance should be highlighted and described, as should their habitats. An updated list, such as the IUCN red list should be included as an annex.

   4. Current and potential future threats to biodiversity including a general assessment of overall health of ecosystems and major factors affecting ecosystem health such as land use, pests, and/or contamination, etc. or major institutional or policy failures or

transboundary issues as appropriate. Special attention should be given to the long-term impact of the Chernobyl disaster, the forest industry in the Carpatians, the development of international transportation infrastructure, and Ukraine's plans to privatize agricultural land.

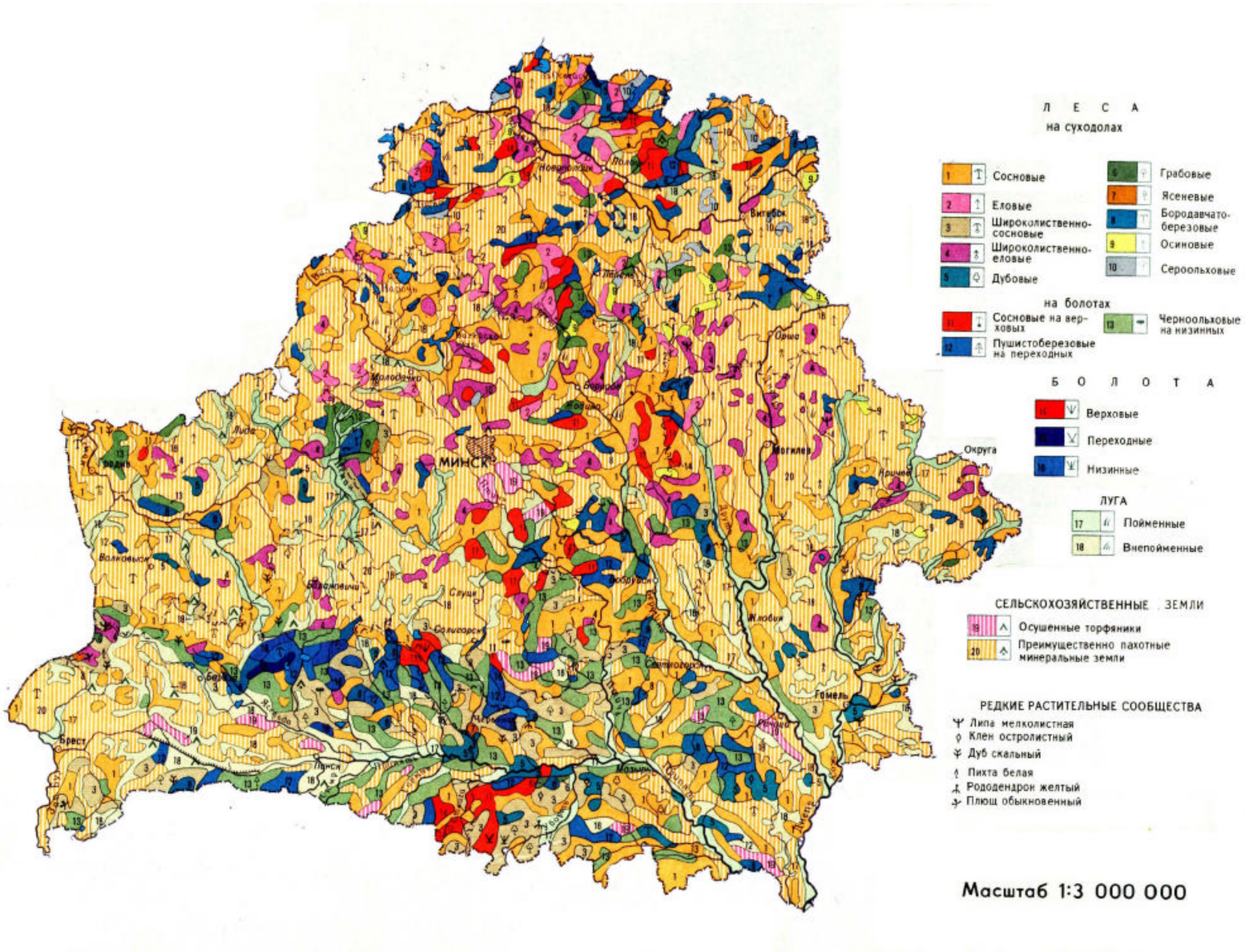
5. Conservation efforts including national policies and strategies, the status of financing for conservation, the status of country participation in major international treaties (with particular attention to the Convention on International Trade in Endangered Species – CITES), the country's protected area system, and botanical gardens/gene banks (if relevant) and their status, and monitoring systems. This section should also include recent, current and planned activities by donor and multilateral lending organizations (IFIs), international conservation NGOs, and agencies of the USG that support or significantly impact biodiversity conservation, including sustainable forestry, soil conservation, and efforts to combat desertification and establishment of parks. Identify NGOs, universities and other local organizations involved in conservation, and a general description of responsible government agencies. A general assessment of the effectiveness of these policies, institutions and activities to achieve biodiversity conservation should be included. Priority conservation needs which lack donor or local support should be highlighted.

6. USAID's program in general and, if relevant, 1) any perceived potential areas of concern related to biodiversity impacts with current or planned program activities, or 2) any potential opportunities for USAID to support biodiversity conservation consistent with Mission program objectives.

E. Prepare a report for Ukraine, Belarus and Moldova that incorporates and summarizes the information obtained and analysis required in the above activities on the status of biodiversity and conservation efforts and the implications for USAID programming and environmental monitoring to ensure compliance with 22 CFR 216 and Section 119(d). This report shall recommend actions that may be taken by Ukraine, Belarus and Moldova to conserve biodiversity, as well as activities that may be useful for USAID to support to ensure compliance with 22 CFR 216 and Section 119(d).

ANNEX C

Map of Major Vegetation Types in Belarus



VEGETATION MAP OF BELARUS
(Scale 1 : 3 000 000)

Approximate Translation of Map Legend

FOREST VEGETATION

a) Uplands

1. pine
2. fir
3. pine and broad-leafed
4. fir and broad-leafed
5. oak
6. hornbeam
7. ashen
8. birch
9. aspen
10. grey alder

b) on bogs

11. pine on raised bogs
12. birch on transitive bogs
13. black alder on lowland (low ground) bogs

BOGS

14. raised
15. transitive
16. lowland

MEADOWS

17. in bottomlands
18. in uplands

AGRICULTURAL GROUNDS

19. drained peatbogs
20. predominately arable mineral grounds

RARE VEGETATIVE COMMUNITIES

small-leafed linden
sharp-leafed maple
oak
white fir
yellow rhododendron
common ivy

Adapted from: Atlas of Byelorussian SSR, Page 22. Geodesy and Cartography, USSR Council of Ministers, Moscow. 1990.

ANNEX D

List of Endangered Species: Red Data List for Belarus

Data from: Hilton-Taylor, C. (compiler) 2000. *2000 IUCN Red List of Threatened Species.* IUCN, Gland, Switzerland and Cambridge, UK. xviii + 61pp. Downloaded April 2001. http://www.redlist.org/.

Amphibians

Scientific Name	Common Name	Red List Category
Bombina bombina	European Fire-bellied Toad	LR/cd
Hyla arborea	European Common Tree Frog	LR/nt
Triturus cristatus	Great Crested Newt	LR/cd

Birds

Scientific Name	Common Name	Red List
Aythya nyroca	Ferruginous Duck	LR/nt
Glareola nordmanni	Black-winged Pratincole	DD
Gallinago media	Great Snipe	LR/nt
Aquila clanga	Greater Spotted Eagle	VU C1
Circus macrourus	Pale Harrier	LR/nt
Haliaeetus albicilla	White-tailed Eagle	LR/nt
Crex crex	Corn Crake	VU A2c
Acrocephalus paludicola	Aquatic Warbler	VU A1c+2c

Fish

Scientific Name	Common Name	Red List
Misgurnus fossilis	Weatherfish	LR/nt
Aspius aspius	Asp	DD
Carassius carassius	(European subpopulation) Crucian Carp	LR/nt
Phoxinus percnurus	Swamp Minnow	DD
Gymnocephalus acerina		DD
Coregonus albula	Vendace White Fish	DD
Coregonus lavaretus	Lavaret	DD
Eudontomyzon mariae	Ukranian Brook Lamprey	DD

Mammals

Scientific Name	Common Name	Red List
Bison bonasus	European Bison	EN A2ce, C2a

Lutra lutra	Common Otter	VU A2cde
Mustela lutreola	European Mink	EN A1ace
Myotis dasycneme	Pond Bat	VU A2c
Myotis myotis	Greater Mouse-eared Bat	LR/nt
Nyctalus lasiopterus	Giant Noctule	LR/nt
Desmana moschata	Russian Desman	VU B1+2c
Castor fiber	Eurasian Beaver	LR/nt
Micromys minutus	Harvest Mouse	LR/nt
Microtus oeconomus	Root Vole	LR/nt
Dryomys nitedula	Forest Dormouse	LR/nt
Glis glis	Fat Dormouse	LR/nt
Muscardinus avellanarius	Common Dormouse	LR/nt
Marmota bobak		LR/cd
Pteromys volans	Russian Flying Squirrel	LR/nt

Reptiles

Scientific Name	Common Name	Red List
Emys orbicularis	European Pond Turtle	LR/nt

The plants of Belarus listed in the Threatened Plants Database should be available through the Internet at: http://www.unep-wcmc.org/index.html?http://www.unep-wcmc.org/species/plants/categories.htm~main. The site was not operating properly at the time this report was being prepared.

ANNEX E

Map of Protected Areas in Belarus

Source: Ministry of Natural Resources and Environmental Protection of the Republic of Belarus and National Academy of Sciences of Belarus. *First National Report on the Implementation of the Convention on Biological Diversity in Belarus*. 1998

ANNEX F

Bibliography

Ministry of Natural Resources and Environmental Protection of the Republic of Belarus and National Academy of Sciences of Belarus. *First National Report on the Implementation of the Convention on Biological Diversity in Belarus*. 1998.

Ministry of Natural Resources and Environmental Protection of the Republic of Belarus and National Academy of Sciences of Belarus. *National Strategy and Action Plan for the Conservation and Sustainable Use of Biological Diversity in the Republic of Belarus*. 1998.

Ministry of Natural Resources and Environmental Protection of the Republic of Belarus. *Revival of Bison in Belarus.* 1999.