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BELARUS

FAA 119 BIODIVERSITY ANALYSIS

February 2007

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ACRONYMS AND ABBREVIATIONS

AEGIS	Agricultural and Environmental Geospatial Information Service
APB	Birdlife Belarus
FAA	Foreign Assistance Act
Ci	Cesium
CIS	Commonwealth of Independent States
EGAT	Economic Growth, Agriculture and Trade
EU	European Union
FSC	Forest Stewardship Council
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GHG	Green house gas
Ha	hectare
IAA	Inter-Agency Agreement
IBA	Important Bird Areas
IBRD	International Bank for Reconstruction and Development
IQC	Indefinite Quantity Contract
IPM	Integrated Pest Management
JFIT	Japanese Funds-in-Trust
NIS	New Independent States
NGO	Non-governmental organization
NPP	Nuclear Power Plant
PLACE	Prosperity, Livelihoods, and Conserving Ecosystems
POPs	Persistent Organic Pollutants
PI	Principle Investigator
RSPB	Royal Society for the Protection of Birds
TACIS	Technical Aid to the Commonwealth of Independent States
USAID	US Agency for International Development
UNDP	United Nations Development Program
UNECE	United Nations Economic Cooperation for Europe
UNEP	United Nations Environment Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UK	United Kingdom
USFS	United States Forestry Service
USG	United States Government

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PREFACE

This analysis was compiled for the USAID Regional Mission for Ukraine, Moldova, and Belarus in order to comply with Section 119 of the Foreign Assistance Act (FAA) in preparation for the upcoming strategic planning process for Belarus. The analysis provides the reader with a thorough view of Belarus from an environmental perspective, focusing on biodiversity. Considerable effort was taken to accurately represent the environmental issues facing Belarus. The findings and recommendations are presented in a manner to be consistent with USAID Regional Mission for Ukraine, Moldova, and Belarus' current and foreseen Strategic Objectives and to work within the existing framework of the Mission's portfolio. The bulk of this report provides background and descriptions of Belarus in an environmental context and we hope it provides a valuable overview for those new to, or working in, Belarus.

After a thorough review of available resources, meetings with a diverse range of stakeholders, and visits to priority sites, the Team identified the critical threats to biodiversity, the actions necessary to conserve biodiversity, and the extent to which the Mission is meeting these needs.

This assessment is organized in six sections:

- Section I of this report outlines the purpose and objectives of the study, and provides an introduction and general overview of information collected, meetings held, site visits, and information gaps on the status of biodiversity in Belarus.
- Section II presents an overview of the biodiversity in Belarus, a description and status of the major ecosystems in the country, and reviews the most important threats to biodiversity conservation.
- Section III discusses the actions taken to date by Belarus, including both the Government of Belarus and the NGO sector.
- The actions necessary to conserve biodiversity are discussed in Section IV.
- Section V is meant to cover an analysis of the extent to which USAID's proposed actions meet the needs identified. At this time, the Mission has not defined its proposed actions, and so this remains to be completed by the Mission once they have defined their new strategy.
- Finally, Section VI provides a consolidated matrix for ease of review.
- The report also includes a series of annexes providing technical information to document the state of biodiversity in Belarus in 2006.

Special thanks to: Chuck Howell and USAID Staff in Minsk who hosted the DevTech team; officials from Ministry of Natural Resources and Environmental Protection and Ministry of Forestry who provided abundant information; Alexander Kozulin, Alexander Vintchevski, and other scientists from Bird Life International and the National Academy of Sciences who provided valuable technical information; Elena Laevskaya of EcoPravo who guided our team in Minsk, and Mikail Mikalchuk, a top notch scientist who escorted our team around Brest oblast.

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EXECUTIVE SUMMARY

The FAA mandates that Missions, in preparation of their strategic plans, consider (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 (FAA, Sec. 119(d)).” In October 2006, USAID Regional Mission for Ukraine, Moldova, and Belarus commissioned a study by a Team of experts to determine the biodiversity needs to comply with the FAA and enhance USAID support in Belarus. This assessment is an update to the Mission’s original Biodiversity Assessment for Belarus which was completed in 2001.

Definitions: To ensure consistency with USAID guidelines, the team referred to the FAA 118-119 Lessons Learned & Best Practices (USAID 2005) in framing the assessment design. Throughout the report, we utilized the definition of biodiversity as presented in Biodiversity Conservation: A Guide for USAID Staff and Partners (USAID, 2005) as:

“Biological diversity, or biodiversity, is the variety and variability of living organisms broadly including a wide diversity of plant and animal species, communities, and ecosystems. The Earth’s biodiversity consists of genes, species, and ecological processes making up terrestrial, marine, and freshwater ecosystems that both support and result from this diversity.”

The purpose of this report is to update the USAID Regional Mission for Ukraine, Moldova and Belarus’ Biodiversity Assessment for Belarus, focusing on changes since 2001. Based on this analysis, the report identifies the threats to biodiversity in Belarus, the actions necessary to address them, and the extent to which the Mission’s actions meet these needs.

a. Major Threats to Biodiversity

The biodiversity of Belarus is threatened primarily across five sectors, three of which are related to productive use of natural resources (agriculture, forestry, and water), and two institutional sectors (public awareness/socio-economic issues and governance). In the FAA 119 Biodiversity Analysis for Belarus, the DevTech Team identified 14 key threats in these areas. Of these key threats, the Team identified the top three threats of utmost importance. These threats are:

- **Selective application of the rule of law.** Selective enforcement of laws regarding harvest of forest resources and laws on hunting and poaching allows for unchecked degradation of natural resources and biodiversity.
- **Lack of viable habitat.** Historical habitat loss both from the conversion of land for agriculture and/or livestock production and from the clearing of forests has resulted in a lack of viable habitat and compromised ecosystem services. Clearing of forests also impacts land drainage and natural erosion controls, which in turn negatively impacts water quality and aquatic habitats.
- **Potential re-release of radioactive contamination.** The contaminated forest areas around Chernobyl have become stores of radioactive material. A forest fire could potentially re-release this material with devastating impact on the country’s biodiversity – including human beings.

b. Sectoral Analysis of Threats

The threats to biodiversity in Belarus cut across the areas of impacts from agriculture, the forestry sector, water and aquatic ecosystems, public awareness and socio-economic issues, and governance.

- **Agriculture.** The most significant threats to the biodiversity of Belarus have come from the transformation of large natural territories for human use, particularly lands which have been converted for agriculture. One such example is the widespread draining of peat bogs for conversion into agricultural lands. The inappropriate application and storage of agricultural chemicals has been a continuous threat to the country’s biodiversity since the sector became more developed following World War II. A new program in place to subsidize fertilizers has increased the quantity of fertilizers

applied to farmland in Belarus. While this added fertilizer has increased agricultural production, there is potential for increased pollution of ground water and surface water.

- **Forestry.** The successful management of the nation's forests by the Ministry of Forestry's Forest Fund has allowed forest coverage to increase in recent years. In 2005, the timber stock stood at 1.43 billion cubic feet, or about 40 percent higher than 1997 volumes. During this same period forest acreage expanded to from 35.5 percent to 37.7 percent of the area of the country. Overall, the Ministry of Forestry deserves credit for its positive role in the management of the Belarusian forests. It has increased the amount of forests and is integrating biodiversity conservation into their management plans. However, illegal logging and hunting still take place in the country's forests. Unchecked, these illicit practices could have a negative impact on biodiversity.

Of major concern is the delicate situation of the 1.6 million hectares of forest contaminated by radioactivity from the Chernobyl Nuclear Power Plant disaster. It is estimated that a large-scale forest fire in the most contaminated areas could have serious consequences as this fire could release radioactivity into the atmosphere. Contaminated areas are under increased forest fire surveillance and have been given extra resources for fire prevention and fire fighting.

- **Water and Aquatic Ecosystems.** The legacy of aggressive land drainage activities in the 1960s and 1970s that reduced bogs and wetland coverage in the country by half continues to have a significant impact on aquatic habitats, especially in the southern regions. Hydrological modifications introduced at the time included the establishment of a network of water reservoirs, artificial canals, and drainage ditches. These dramatic changes to the country's aquatic ecosystems have led to the measurable disappearance in recent years of high-value fish species such as brook trout and other salmonids.

Water quality is a major concern. Sewage and chemical discharges into the country's waterways enhance eutrophication of water ecosystems, which is followed by changes in species and community composition of aquatic flora and fauna. Industrial discharges of toxic materials such as heavy metals and persistent organic compounds can directly kill fish and birds, and they accumulate in organs and tissues to be transferred through the food chain and disrupt breeding and behavioral patterns in higher trophic levels.

- **Public Awareness and Socio-economic Issues.** Public perceptions, attitudes, and relationships with the natural world can be assets or threats to biodiversity. According to an opinion poll conducted in 2002, only 36 percent of the population is worried about environmental conditions. Moreover, only 10 percent of city dwellers considered that they had sufficient environmental information, and 90 percent of respondents did not know their rights to access environmental information. Clearly, more work needs to be done related to citizen access to information and participation in decision making.
- **Governance.** Governance issues in Belarus have drawn international attention in recent years. These concerns have been focused at the highest levels within the country. Good environmental governance often depends on good laws, strong and fair enforcement, transparent and accountable government agencies, public access to information, and active citizen participation in local environmental decision-making. The concentrated management of protected lands in the Office of the President of Belarus can have negative impacts on biodiversity. Some of the forest resources in the protected lands have been harvested for sale to earn foreign currency for Belarus. It is assumed that these timber harvests have been conducted without basic regard to the natural resource base and, consequently, detrimental to the biodiversity present in the protected lands.

c. Commitment of Key Stakeholders in Protecting Biodiversity

The government has delineated portions of its landscape as protected areas. In 2004, Belarus listed 16 million hectares, or about 7.6 percent of its landscape as protected. This is an increase over 1997 and includes some changes in status for several areas. Belarus plans to extend these areas to 9 percent by 2015. The country has a transboundary reserve with Poland on the World Heritage List (the Beloveshaskaya Puscha/Bialowieza Forest), and another planned Transboundary Biosphere Reserve (Zapadnoye Polesseye) will cover 200,000 hectares in Belarus, Poland, and Ukraine.

Currently, environmental policy in Belarus is developed through five-year "National Action Plans for the Rational Use of the Natural Resources and Environmental Protection (NEAPs)." Since 2001, two NEAPs have been developed and approved. The five-year action plans are based on the national priorities and follow the recommendations and principles of Agenda 21 as adopted at the Rio Conference in 1992. The priority measures set out for the plans are aimed at balancing solutions for environmental and social problems with the necessity of economic development. In May 2004, Belarus approved the "National Strategy for Sustainable Development (NSSD) through 2020" that outlines an overall strategy for environmental protection and biodiversity conservation along with other issues related to better living conditions and public health and greater environmental security.

Tourism and recreation activities have great potential for Belarus and the government has targeted this area for growth. This includes activities for bird watching, photo-safaris, trekking, canoe trips, bicycling, horseback riding, and visits to rural farms. The national parks, protected areas, and Important Bird Areas (IBAs) represent critical assets to this rural economic development strategy. Also, the rural agricultural community has developed a unique agro-ecology tourism concept that allows visitors to stay at local farms and participate in traditional Belarusian folk culture.

Non-governmental Organizations. According to the Ministry of Justice, there were 47 environmental NGOs registered in Belarus in 2005. The United Nations Economic Council of Europe (UNECE) considers this to be extremely low compared with most other UNECE countries. Most NGOs operate in Minsk and other big cities. They deal with environmental education or specific issues like bird habitat preservation. Most NGOs have little, if any, domestic funding.

According to law, citizens and NGOs have the right to address their complaints, applications and proposals to public authorities and legal persons, and to receive reasoned replies in a short time. In response, oblast and local bodies of the Ministry of Natural Resources and Environmental Protection can impose administrative sanctions, including damage compensation, on offenders. NGOs often use this right to conduct a public review, or ecological review, of a planned activity, such a land fill or dam construction. The NGO can send review results to the State Ecological Expertise for possible consideration.

International Donors. International donors have been primarily focused on issues of governance and rule of law in Belarus in recent years. Nonetheless, there has been some funding provided focusing on biodiversity conservation. UNDP has provided funding for the protection and management of wetlands and peat lands, and UNEP has been involved with providing the government with support to formulate a national biodiversity conservation strategy.

d. Assessment of USAID Support and Opportunities

Currently, the USAID program in Belarus has no activities in place that are focused specifically on biodiversity conservation. However, USAID programming in strategic areas can have positive impacts on biodiversity conservation in Belarus. Although the Mission has no current plans to make substantial investments in biodiversity protection, there are potential linkages in the current portfolio which would be good opportunities for interventions. Examples include:

- **Civil Society.** In Belarus, civil society plays a crucial role in building awareness and appreciation of natural resources and biodiversity. USAID could provide **small grants to NGOs** in Belarus with biodiversity advocacy goals.
- **Business Development.** Efforts to **support and promote ecotourism** could provide a boost to business development Belarus. The British have been active in promoting ecotourism in the country in an effect to build the industry to levels where it can compete with other countries in the region with more advanced ecotourism sectors. The USAID business development program objectives would fit well to ecotourism, especially with a focus on bird watching.

One specific program that could easily incorporate biodiversity conservation themes is the Agribusiness Volunteer Program (AVP). In Belarus, the program is currently focusing its efforts on improving the performance of privatized collective farms with the overall goal of increasing the incomes of their owners and employees and establishing models of successful private enterprise activity throughout the country. The program is a natural fit as a vehicle and mandate to promote increasing incomes by improving on productivity. The economic productivity of conservation and biodiversity actions leading to ecotourism would provide alternatives to owners and employees of privatized collective farms. With encouragement, this project could easily contribute to biodiversity conservation.

SECTION I: INTRODUCTION AND BACKGROUND

The purpose of this biodiversity analysis is to ensure USAID compliance with the Foreign Assistance Act (FAA), Part 1, Section 119 and help inform and guide the USAID Regional Mission for Ukraine, Moldova, and Belarus' planning with respect to biodiversity needs during the development of their upcoming strategic planning process. Specifically, the objectives of this analysis are the identification of the needs for biodiversity conservation in Belarus and assess how the Mission strategy contributes to meeting such needs. Section 119 requires:

“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”.

Methodology: To conduct the assessment, the Team members collected relevant available materials (reports, studies, etc.) and met with representatives of USAID/Washington prior to departure. The Principal Investigator (PI) then traveled to Belarus and held meetings with a diverse range of people from government agencies, donors, implementers, the private sector and non-governmental organizations (NGOs) (see Annex E). The Team Leader remained in Kiev, Ukraine to gather additional information, and summarize and synthesize documents and reports (see References, Annex F).

In Minsk and Brest oblasts, the Principal Investigator and a contracted expert conducted site visits to make firsthand observations on the status of the environment, and to interview local government officials and authorities, private citizens and experts, and NGOs regarding natural resources management and biodiversity issues at the local level. This included a trip to Belavorskaya Puscha to tour the nature reserve, tourist facilities, and nature museum. Afterwards, he traveled to Brest to meet with local officials at the Oblast Nature Protection department. The PI also met with several NGOs, researchers in the botany and ornithology departments, and the Global Environment Facility (GEF) donor representative. Finally, he met with officials from the Ministries of Forestry and Ministry of Natural Resource and Environmental Protection. An information gap existed in reference to levels of financial commitment to protect and conserve biodiversity resources. Further, maps were not readily available with the exception of the map of protected areas (Annex A).

The findings in this report are based on information gathered during these interviews and site visits, as well as from documents produced by a variety of sources (see References, Annex F). The findings address FAA 119 requirements, specifically addressing biodiversity threats and actions necessary to meet these threats. Finally, the report provides recommendations on how USAID Regional Mission for Ukraine, Moldova, and Belarus may be able to integrate biodiversity-related components into programs, projects and activities.

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SECTION II: THREATS TO BIODIVERSITY

A. Overview

Belarus is a landlocked country bordering on Poland to the west, Russia to the east, Ukraine to the south, and Latvia and Lithuania to the north. The country has a temperate continental climate influenced by the Baltic Sea and Atlantic Ocean. The total land area is about 21 million hectares (207,595 square kilometers). It is generally flat terrain with the average altitude between 100 and 200 meters and covered in forests, lakes, and marshes. Arable land covers 27% of the landscape, forests and woodlands 38%, meadows and pastures 16%, and marshes about 4%.

Belarus has large forests and extensive freshwater aquatic systems including bogs, mires, wetlands, lakes and rivers that provide habitats for many species. The country lies between eastern and western Europe and provides important migration corridors for European, Mediterranean and Siberian endemic species. However, due to previous glaciations, Belarus claims no endemic species of its own. Nonetheless, the country is rich in biodiversity with 467 vertebrate species and more than 30,000 invertebrate species. There are 76 species of mammals and 309 species of birds, of which 227 live permanently in Belarus with the rest migratory. The country contains 61 species of fish living in Baltic or Black Sea watersheds. The vegetation of Belarus consists of about 11,700 species of plants, including 2,100 species of higher plants. This includes 1,638 species of vascular plants mostly herbs (about 1,500 species). There are 107 wild indigenous plant species of wood plants of which 28 species are trees and the others are bushes and shrubs.

Except for agricultural lands and forests Belarus is relatively poor in other resources. Peat is plentiful and used as a household fuel. Of a population of 9.9 million, 28% live in rural areas, 14% are employed in agriculture and 2% in forestry. Agriculture provides 10% of the GDP and forestry provides about 4% of the GDP. Since the collapse of the Soviet Union, Belarus faced economic hardships and declining GDP. Since 2000, GDP and other measures of economic wealth have been increasing. Due to the Chernobyl disaster, about 23% of the country is considered radioactively contaminated.

Habitats and Landscapes

In Belarus, the landscape has four distinctive geographic regions:

- **Northern Lake District.** Mostly forested bogs and lakes in the north.
- **Polessye Lowlands.** Wetlands and rivers and swamps associated with the Pripjat River basin in the south.
- **Moraine Plains.** Elevated plains with remnant steppe elements in the east often used for agriculture.
- **Mixed Conifer and Deciduous Forest.** European broad leaf and taiga forests often converted to agriculture in the west.

These geographic regions contain critical habitats that support biodiversity and land use activities (or sectors) that threaten them. Important habitat/sector classifications for Belarus include: forests, wetlands and rivers, steppe and agricultural regions, and the atmosphere.

Forests and Wildlife. Belarusian forests represent an important asset for national biodiversity and economic development. Forests cover about 38% of the landscape; or about 9 million hectares providing important wildlife habitats and sources of revenue. Pine and spruce forests dominate in the northern part of Belarus and together cover 4,151 hectares, or about half of the forest landscape. Important deciduous trees include oak, maple, ash, hornbeam, birch, aspen, and alder species that make up the other half of timber resources. Important species of mushrooms, herbs, shrubs, and grasses not only support natural habitats, but also provide valuable non-timber forest products for local communities.

In addition to flora, Belarus forests also provide habitat important fauna, including native mammals, such as bear, bison, lynx, elk, deer, boar, beaver, hare, wolf, fox, otter, and mink species. Bird species dependent on forest habitats include wood-grouse, black cock, hazel hen, grey partridge, and many duck species. The Ministry of Forestry permits hunting for 53 species of animals including 22 mammals and 31 species of birds and maintains 80 hunting entities on over 3,000 acres of forest. In the last several decades Belarusian naturalists reintroduced the European Bison (*Bison bonasus*) and now the country maintains a low, but sustainable population of these animals, mostly in Belavarskaya Pusha National Park.

Wetlands, Marshes and Birds. Marshes, bogs, mire, floodplains and rivers play a critical role in regional biodiversity conservation. The country serves as part of the Pan-European ecological network and important bird migration routes depend on the north-south Dnieper River corridor and the east-west Pripyat River corridor. Once widespread across temperate Europe, mesotrophic fen mires have almost disappeared this century as a result of drainage, land reclamation, peat extraction, development and changes in surrounding land-use and water level. Their range is now almost exclusively restricted to Belarus, Poland, Ukraine and Russia. The small area that remains is under continuing threat from drainage, land reclamation, peat extraction, development and vegetation succession as a result of land use and water level changes. The fen mire habitat is vital habitat to many threatened and rare bird species. For example, half the world population of the globally-threatened aquatic warbler (*Acrocephalus paludicola*) is found in the fen mires of Belarus. Other threatened and rare species that live in Belarus forested wetlands include the Greater Spotted Eagle (*Aquila clanga*) and the Lesser Spotted Eagle (*Aquila pomarina*).

Rivers and Fish. A highland area stretching from the northeast to the southwest divides the country into two large watersheds; the southern watershed empties into the Black Sea and the northern watershed drains into the Baltic Sea. The Dnieper is the largest river with (700 km in Belarus) with two main tributaries, the Pripyat (495 km in Belarus) and the Brezina (613 km in Belarus.) These rivers flow south and east and drain into the Black Sea. The Zapadnaya Divina, the Neman (459 km in Belarus) and the Zapadni Bug flow west and north into the Baltic. The Zapadni Bug is also connected to the Pripyat by canal and subsequently also flows into the Dnieper drainage and determines the country's southwest border with Poland. River ecosystems are rich in freshwater fish species including carp species such as breams and roaches, along with pike, catfish, groundling, river perch, stickleback, eel and eel species. Important Red Data Book species include sturgeon (*Acipenser ruthenus*), brook trout (*Salmo trutta*), grayling (*Thymallus thymallus*) and minnow (*Barbus barbus*) species. Many of these aquatic systems have been altered due to land drainage, flood control and construction of commercial fish farming ponds. Probably the biggest impacts on fish species results from the loss of spawning and breeding grounds due to land drainage and filling.

Steppe, Pasture and Arable Lands. The steppes and arable lands of Belarus are less fertile than those of neighboring Ukraine. These regions contain sandy, podzolic soils with less humus content than the rich chernozem soils of neighboring Ukraine and southern Moldova. Nonetheless, about 9.1 million hectares, about 44% of the total country, is considered agricultural land. Of this amount, two thirds or 5.8 million hectares is arable land, the remaining third is natural grassland. These ecosystems contain important steppe and steppe-forest communities based on *Carex* and *Fescue* grass species. Notable Red Data Book grass species threatened by agricultural activities include *Carex rhizna*, *Carex capillares*, *Carex davalliana* and *Festuca altimissa*. Many of these natural grasslands have been replaced by grain and forage crops such as barley and hay, respectively. Soviet-era land drainage projects drained about half the wetlands for agricultural use and further threatened marsh vegetation such as the mosses, (*Sphagnum magellanicum*), sedges (*Carex pauciflora* and *Carex limosa*), and shrubs such as cranberry, crowberry, and Labrador tea. In the past 10 years about 0.6 million hectares of agricultural lands have been abandoned and are reverting to forests and meadows.

Atmosphere. Belarus been referred to as the “lungs of Europe” because vast forest and wetland ecosystems purify air masses coming predominantly from Western Europe. They serve as carbon sinks and are subject to an estimated 400,000 tons of trans-border atmospheric pollutants, primarily sulfur dioxides and nitrogen oxides. Moreover, weather patterns brought Belarus most of the radioactive fallout from the Chernobyl

disaster in 1986. The initial explosion contaminated about 23% of the territory where 20% of the population lived. Today, radioactivity in the environment has fallen to about 1% of the total released and some zones have been reclassified to safer status. However, 20% of the country (46,500 square kilometers) still contains long-lived isotopes of cesium above acceptable levels. For these reasons, atmospheric patterns and processes affect biodiversity, especially in forest ecosystems. For example, air pollution affects lichens that rely only on the air for moisture and it contributes to the acidification of wetlands and forest systems.

B. Red Data Book

Belarus published the third edition of the Red Data Book for animals in 2004 and for plants in 2005. For animals, the third edition lists 189 species; compared to 182 in the second. Important animal additions include the European mink, Atlantic salmon, and brown trout. Specific changes include:

Insects: 27 species added, 36 removed; total 70
Mammals: 4 species added, 1 removed; total 17
Birds: 16 added, 19 removed; total 72
Fish: 3 species added; total 11
Bivalves: 2 added, 1 removed; total 2
Crustaceans: 5 added; total 10
Leeches, spiders, and amphibians: 1 each added

For plants, the third edition lists 274 flora species including 221 plants (182 in second edition); 24 lichens (17) and 29 mushrooms (17). In all, 91 species were added and 31 excluded. Specific changes include:

Vascular plants: 41 added; 24 excluded; total 173
Mossy plants: 12 added; total 27
Algae: 12 added; total 21
Lichens: 11 added; 4 excluded; total 24
Fungi: 15 added; 3 excluded; total 29.

Most of these plants are listed as extremely rare, occurring in small numbers and in restricted areas, with a high probability of extinction.

See Annex D for a complete list of endangered species.

C. Key Sectors: Status, Trends and Threats to Biodiversity

The following section details threats to biodiversity in Belarus. The most significant threats to biodiversity in Belarus are:

- **Selective application of the rule of law.** Selective enforcement of laws regarding harvest of forest resources and laws on hunting and poaching allows for unchecked degradation of natural resources and biodiversity. While many of the necessary policies and institutions are in place to protect natural resources and biodiversity, they are rarely applied consistently and appropriately.
- **Lack of viable habitat.** Historical habitat loss both from the conversion of land for agriculture and/or livestock production and from the clearing of forests has resulted in a lack of viable habitat and compromised ecosystem services. While much of the habitat loss was a historical threat, agricultural activities are again increasing, and placing additional stress on necessary habitat. Clearing of forests also has secondary impacts in impacting land drainage and natural erosion controls, which in turn negatively impacts water quality and aquatic habitats.
- **Potential re-release of radioactive contamination.** The contaminated forest areas around Chernobyl have become stores of radioactive material. A forest fire could potentially re-release this material with devastating impact on the country's biodiversity – including human beings.

In order to provide the Mission with a document that can easily be applied to USAID program areas, a detailed analysis of 14 notable threats are classified by several important sectors:

1. Agriculture Sector
2. Forestry Sector
3. Rivers, Wetlands, and Aquatic systems
4. Public Awareness and Socio-Economic Issues
5. Governance Issues

Within each sector, threats are organized by significance, with the greatest threats listed first.

1. Agriculture

a. Status and Trends

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. Belarus covers about 21 million ha with 44% or 9.1 million ha under agricultural. The past 10 years have seen a decrease of 0.6 million ha which have mainly become forest. The increase in forest land is the result of the conversion of unproductive, fragile agricultural lands to more stable forest lands. Two thirds or 5.8 million ha are arable land with the remaining third natural grassland.

During Soviet times, Belarus was a surplus milk and meat producer as a result of high-input agriculture plus large-scale imports of feed-grain. This production provided jobs and income. This production also resulted in environmental problems, such as leaching of plant nutrients from fertilizers and manure, with ensuing water pollution, and the negative effects of pesticide use, including leaching.

Agricultural production was on the decline during the 1990s and by 2000 was lower by about 30%. The livestock (primarily beef) production has also decreased to 50% of Soviet era levels. The production of pork, eggs and milk have remained unchanged since the end of the Soviet era.

Grain production began to increase again in 2000 and has reached 80% of the 1990 production level and production continues to increase. Ideally, future crop production and livestock production will develop nationally and within individual farms. Livestock production should be mainly based on the country's own feed-grain resources. Manure loads should not exceed the nutrient uptake capacity of crops.

Agricultural land is used by three types of farms. About 2,500 large scale farms produce 60% of the country's agricultural output of crops and livestock, private farms about 1% and household plots close to 40% of the production. The household plots use inputs from large-scale farms, such as feed grains. The relative figures for beef production have remained stable since 1990. Such stability may be due to the strong administrative pressure on large-scale collective farms to maintain herds; continued State ownership of dairy plants, slaughterhouses and trade channels; and low regulated prices. As a consequence, Belarus has not experienced the sharp increase in manure production and hygiene problems in villages that are typical of much of the CIS.

Impact of the Chernobyl Nuclear Power Plant accident on Belarusian agriculture

After the Chernobyl accident, agriculture, including crop and livestock production, was banned on 264,000 ha with high cesium-137 concentrations, or 3% of the country's agricultural area. A further 1.1 million ha, or 12% of the agricultural area, with lower levels of contamination were made subject to a control regime. All products, including wild berries and mushrooms, must undergo radiation measurement before they can be eaten or sold. More than 900 control points have been established in the areas concerned. Permissible radiation levels are stricter than international standards. This control functions well for products delivered to the food industry or trade channels. However, for home-produced food, only a small percentage is estimated to be brought to control points for testing. There is a general system of food monitoring, based on sample collection and measurement, under the Ministry of Agriculture and Food.

During the more than 20 years since the accident, radiation levels have decreased somewhat. Also, field inventories and measurements have shown a great deal of variation. A system of liming and fertilizer application to prevent plant uptake of radionuclides is said to have used 20% of the State's budget for Chernobyl measures. Many of the 600 large-scale farms in contaminated areas have applied for clearance of individual fields. Through a complex system of measures developed by Belarusian research institutes, uptake by plants and animals can be diminished and some restricted areas have been opened up for production. Several measures include, among others, the choice of soils, liming and fertilizer application, choice of crops and varieties, crop rotations, the use of cesium-binding agents in livestock feed, quarantine periods on "clean" forage before slaughtering of cattle. Belarus is implementing its General Program for overcoming the consequences of the Chernobyl Nuclear Power Plant disaster up to 2010.

Of the 1.1 million ha of agricultural area originally under the control regime, 400,000 ha have been freed, mainly grasslands.

The low Belarusian radiation limits of 20% of the comparable international standards for declaring food products fit for human consumption have been questioned by international experts. Belarusian authorities acknowledge this discussion, but insist that national standards will remain unchanged because the population of Belarus is under permanent pressure from radiation, a factor which is not taken into account in international norms.

b. Threats to Biodiversity

Agrarian land use is considered to be one of the largest factors in Belarus influencing biological diversity of ecosystems. The threats to biodiversity from agriculture are many and some are quite serious. Some threats are historical in nature while other threats are continuing threats.

The main threats include:

- Lack of viable habitat due to land conversion for agriculture and livestock production
 - Storage of fertilizers and pesticides
 - Soil quality, erosion, desertification and other degradation
- Threat: Lack of viable habitat due to land conversion for agriculture and livestock production
This threat is based on the continuing legacy of historical land clearing and development for agriculture and livestock production. In general, plowing of land, especially when accompanied by drainage, decreases the number of natural habitats for many species of plants and animals which, in the long run, reduces habitat areas and alters their boundaries. On the other hand, the resulting agrarian communities facilitate spreading of both indigenous and invasive species of cultured landscape as well as a change of their areas.

After 1945, Belarus experienced a period of intensification of agriculture with the enlargement of crop land under rotation, the expansion of agricultural land areas through land reclamation, land drainage, an increase in land cultivation technologies that changed the spatial outlook of landscapes and, consequently, the end of the natural ecosystems previously found on the land. An especially adverse impact on biological diversity at the species and ecosystem levels has been exerted by land drainage, a practice widely spread in the 1970s. The largest land reclamation was carried in the southern part of Belarus in the Polesye Region. This led to extermination of natural ecosystems of the entire unique natural region. As a result the landscape has been leveled, the wetland vegetation eliminated and bogs and low lands for used for agricultural purposes.

Livestock populations decreased in the 1990s and, consequently, manure and other waste from livestock decreased as well, resulting in less direct nutrient losses to the groundwater and surface water. The use of

peat for improving the humus content and structure of the soils as well as taking up and holding livestock wastes while maintaining the plant nutrients of the wastes has decreased. Manure and waste are often spread in the winter on frozen ground covered with snow which results in run-off in spring creating higher than acceptable levels of nitrites and nitrates in surface water.

Though the threat of habitat loss is largely historical, agriculture and livestock production continue to contribute to the lack of viable habitat. After years of decline which coincided with the break-up of the Former Soviet Union, agriculture and livestock production began to increase again in 2000, and have reached 80% of the 1990 production levels. This trend continues upwards.

The continuing threat to biodiversity from agriculture and livestock production is the loss of habitat supportive of biodiversity populations, and the impact on aquatic and microbial populations that become threatened by nitrate and nitrite losses to the surface water.

- **Threat: Inappropriate application and storage of agricultural chemicals**

This threat is a continuing threat with impacts on the biodiversity of Belarus. During the 1990s, a smaller volume of chemical fertilizers and pesticides were added to the farmlands of Belarus, due primarily to economic constraints which resulted in a lower level of nutrient losses to surface and groundwater. A subsidized program for fertilizers is now in place which has increased the quantity of fertilizers applied to farmland, increased agricultural production and increased the risk of negative impacts on the biodiversity, as well.

The safe storage of fertilizers and pesticides has been an issue in Belarus. Between 1971 and 1988, 4,000 tons of obsolete pesticides were buried as a supposed means of destruction. In 1988, this practice was banned. Alternative means of disposal of pesticides have been developed. The burial sites are being monitored, but remain a potential hazard.

The continuing threat to the biodiversity from fertilizers and pesticides is primarily to the aquatic and microbial populations threatened by fertilizer and pesticide losses to the ground water and surface water. Inappropriate pesticide handling and application, and the irresponsible disposal of pesticide containers may also have a negative impact.

- **Threat: Soil degradation and erosion**

This threat is a continuing threat with impacts on the biodiversity of Belarus. The soils of Belarus are not as fertile as those in neighboring Ukraine. Much of the soils is acidic and requires liming. The soils need to be carefully managed to maintain their productivity.

Of Belarusian farmland, 6% or 0.5 million ha, is classified as eroded and another 38% as erosion-prone. Water erosion dominates, affecting 84% of eroded land, mainly in the hilly northern and central parts of the country. The 16% harmed by wind erosion are mainly in the drier and warmer south. Much of the problem stems from land reclamation campaigns during the 1960s and 1970s when large scale drainage projects plowing of the hillsides and sandy pastures brought land into use against good ecological and economical sense. Solutions include afforestation, return to grass cover, changed crop rotations, and a return to wetlands. Inappropriate land use in the past has converted wetlands with a shallow peat layer to barren sand. On these depleted soils, wind erosion is starting to create desert-like conditions. Peat fires caused by natural or human causes are another factor in degradation of wetlands. The Government of Belarus has prepared a program to protect soils from erosion.

The threat to the biodiversity from soil quality, erosion and desertification reduces the habitat for biodiversity and may result in the loss of the critical ecosystem required to sustain and enhance the biodiversity base.

2. Forestry

a. Status and Trends

Under the Ministry of Forestry's Forest Fund, forests have increased in recent years. In 2005, the timber stock stood at 1.434 billion cubic feet; about 40% higher than 1997 volumes of 1,093 billion cubic feet. During the same period forest acreage expanded to 37.7% of the area of the country and from 35.5% in 1997. This represents an annual average increase of 27 cubic meters per year since 1997, or about 183 cubic meter increase per hectare. The Ministry manages Belarusian forests for nature protection and commercial timber production. It classifies 51.8% the forest as Group I with nature protection roles and the other half as Group II for commercial exploitation:

Group I forests enjoy a certain degree of protection. They can be harvested, but are protected from clear-cutting. Foresters manage these areas to provide some degree of environmental services; such as soil, water, and air and/or erosion protection. These forests serve as riparian buffers to protect waterways, green belts to improve air quality around cities and major highways, and afforestation zones to protect sandy soils from erosion. Many of these forests lie within strict nature reserves (*zapovedniks*), national parks, and less strictly protected natural areas (*zakazniks*).

Group II forests have until now been managed for growth, production and final clear-cutting. Since new policy initiatives in 2000 "Strategy for the Development of Forestry till 2015," and the reestablishment of the Ministry of Forestry in 2004, Belarus foresters plan to introduce environmental aspects also in the management of production forests:

- Protection of key biotopes
Protection of key biotopes such as wetlands and riparian areas; more respect for environmental goals: less clear-cutting and more gradual harvesting. For example, age limit will be increased by 20 years for pine, spruce and oak, and by 10 years for birch and aspen.
- Forest Stewardship Certification (FSC) for European markets.
Most of the reforestation and afforestation efforts go toward Group II economically valuable species, such as pine, spruce, and oak; with smaller local programs plant birch, alder, and lime, and reintroduced larch (*Larix decidua*). In 2005, the Ministry of Forestry maintained a nursery of 361.9 million standard seedlings, planted 422,000 hectares, and harvested 18 tons of high quality seeds for future use. Some problems have been encountered with afforestation of marginal farmland, in that seedlings have difficulty competing with long-established grasses, ungulates, or rodents that might harm plantations. They are registered as forest only after seven years.
- Non-timber forest products
In addition to timber resources, Belarusian forests provide commercial quantities of mushrooms, berries, birch juice, and honey. Except for mushrooms, all groups increased production from 2003 to 2005. For example, harvests of wild berries increased from 637 tons in 2003 to 1168 tons in 2005. Official statistics record the commercial value of non-timber forest products at 3,795 million rubles in 2005 or USD\$ 1.9 million. These non-timber resources also represent an important source of rural income and recreational gathering practices. Picking wild mushrooms and berries is a national passion. Gathering wild medicinal herbs has a long tradition. Citizens have free access to forests and to these resources, except in specially protected areas.
- Hunting and Wildlife
The Ministry of Forestry also manages hunting on forest lands. The Ministry permits hunting for 53 species of animals, including 22 mammals and 31 species of birds, and maintains 80 hunting entities on over 3,000 hectares of forest. Also, the public Society of Hunters and Fishermen maintains 110 hunting entities of over 10,000 acres of forest land. This Society is an association of members who pay for

licenses and dues who work to maintain sustainable hunting practices. This could be an excellent group for public outreach, education, and cooperation in managing forest biodiversity.

- Policy and Management Framework

The present Forestry Code, approved in 2000 to replace the code from 1972, is the main policy document. Its basic method of meeting environmental protection goals is to create different types of protected forests. The remaining production forests are to be managed with traditional biological skill and experience while production remains the ultimate goal. But the Forestry Code, experts say, is open enough to implement the “Strategy for the Development of Forestry till 2015,” also adopted in 2000. The Ministry of Forestry, re-established in August 2004, is responsible for the sector.

- State Forestry Management

The State owns all forest land. There are about 100 leskhoz, or forestry organizations under the Ministry of Forestry responsible for the management of forests during their lifecycle. After final cutting, leskhoz plant, re-establish and maintain new forest generation. The average area of a leskhoz is 85,000 ha. Leskhoz are furthermore responsible for surveillance and the enforcement of forestry rules in their areas. They also do some (partial) cutting during the lifetime of the growing forest, but not the final cutting. The leskhoz also own some processing industry, usually small and medium-size sawmills. The state budget covers about 70% of leskhoz expenditures; the rest is covered by income from the sale of various forest products. But the bulk of the income, the payment for the final product, and mature trees ready to cut, are passed on to rayon budgets.

The Ministry plans to change the forestry management sector so that leskhoz will be getting 30% of their revenues from the budget and 70% from forest income. These are part of new ideas under the 2000 Strategy to adapt the forestry sector to market economies and sustainable management. In this new framework, mature forest, ready for cutting, will be sold at market prices, mainly determined by auction. The present systematic undervaluation of forests and forest products will vanish. Market forces, i.e., primarily the demands of environmentally conscious consumers in high-price export markets, will also require certification based on environmentally friendly forestry management methods. This will, as a bonus, increase the productivity of forests in the long run. Results on the ground are, so far, limited to one experimental leskhoz. But ambitions are great, and part of a wider change in the practice and economics of forestry in the direction of a market economy.

- Timber processing industry

Sawmills and paper mills are mainly State-owned and grouped in the Belarus Wood and Paper Industry holding company (Bellesbumprom). This holding company buys 60% of the country's production of timber and pulpwood at fixed State prices. The holding company buys mature, standing forest and has special departments for cutting and transport. Another 20% is sold at auctions, an increasing practice, for domestic processing or export, usually at prices more than twice the fixed ones. The remaining 20% is sold at two thirds of the fixed price to needy or social buyers: private persons, schools and hospitals, and farms. Criticism against the distortions of this system is one of the problems behind the implementation of the “Strategy for the Development of Forestry till 2015.”

- Impacts from Chernobyl

The Chernobyl accident contaminated some 1.6 million ha of forest in Belarus or 20% of all forests with radioactivity above 1 Ci/km² or 37 kBq/m². Radionuclide fallout was the highest in the south and east. The highest levels of contamination are found in an area within 30 km of the reactor site. About 60,000 ha of this land are covered by forest.

During the initial period after the accident, tree canopies caught the radioactive particles. After some months, litter-fall and through-fall transferred radionuclides to the forest floor. By 1996, 95% of the total

Cesium-137 contamination was to be found on the forest floor and beginning to migrate into the soil. Only 5% of the total Cesium-137 contamination was stored in the trees at that time. Bark, young needles and branches and the outer growth rings of the trunks contain the highest levels of contamination. Concentrations in tree biomass have continued to increase but were expected to peak in 2004, before slowly declining.

Belarusian forests were divided into four zones depending on the radioactive contamination level of forest soil by Cesium-137: greater than 40 Ci/km²; 15-40 Ci/km²; 5-15 Ci/km²; and 1-5 Ci/km².

The Ministry of Forestry monitors radioactivity on about 100 sample plots. Samples of soil, bark, wood, needles and ground vegetation are routinely analyzed. Results from measurements and scientific research led to the issuing of comprehensive radiation protection guidelines for forestry in 1995. These guidelines are still in place. They specify radionuclide concentration levels, so-called intervention levels, for various foodstuffs, firewood, lumber, etc. as well as guidelines for exposure during forest operations. Food from the forest must not be gathered where radiation levels exceed 5 Ci/km². Areas with contamination below 15 Ci/km² may be used for wood production with the proviso that radiation levels in the wood are constantly monitored. In areas where radiation levels exceed 15 Ci/km², all forestry activities are totally banned. The question of safe food is complicated because some mushrooms, for instance, concentrate radioactivity to dangerous levels while others, picked in the same place, are harmless.

b. Threats to Biodiversity

Overall, the Ministry of Forestry deserves credit for its management of the Belarusian forests. It has increased the amount of forests and is integrating biodiversity conservation into their management plans. The forests show low incidence of forest fires and insect pests and the Ministry is integrating state operations into market-based economies and certification schemes. The forestry sector is willing to draw on international experience and looks to Finnish, Swedish, German, and Canadian practices as good models for national forestry development. It has developed conservation and protection forests for protected reserves and it incorporates recreational and hunting programs into management plans.

Some forestry practices, land drainage and development, and regional atmospheric and climatic factors may serve as threats to biodiversity, as follows:

- Threat: Lack of viable habitat resulting from conversion and land drainage
The large-scale Soviet drainage programs reduced forest habitat in exchange for marginal agricultural lands. Today some abandoned agricultural lands are reverting to pastures and young forests. However the impacts on biodiversity are uncertain. One scientist noted that land drainage may actually increase the absolute number of species, since land clearing and drainage creates patches and edges and adds complexity to forested landscapes. Other data recorded increases in ungulate populations which eat and trample young trees. Several scientists described the drop in the water table as a threat to spruce and other shallow root system species recently devastated by several seasons of high winds.

Moreover, the conversion of previous forest lands to marginal farm lands, has led to desiccation and erosion of some forest soils, especially subject to wind erosion, after these agricultural lands fail. Other affects of land drainage lead to changes in species composition to favor more xerophyllic and southern brush and undergrowth species and the expense of forest wetland and bog ones. The DevTech team observed an outbreak of bark beetles on spruce trees. However, government officials believe this is part of a long-term cycle in the insect population.

For these reasons, any modifications to the hydrological regime, should conduct careful environmental impact assessments to determine the impacts to water quantity and aquatic habitats.

- Threat: Radioactive contamination

Slowly decreasing radiation levels, as they appear in monitoring results, have made some reclassification of zones possible during the 20 years since the accident. Contaminated areas are under increased forest fire surveillance and have been given extra resources for fire prevention and fire fighting. It is estimated that a large-scale forest fire in the most contaminated areas could have serious consequences. A future fire would provide a mechanism for the release of radioactivity into the atmosphere.

The DevTech team found no data to quantify the impact of radioactive contamination. Several field scientists believe that biodiversity has increased in restricted zones due to the elimination of human activities. Belarusian scientists have expertise in studying the long-term effects of this contamination. They believe that certain plants with a large number of chromosomes with high levels of ecological specialization, such as perennial plants and those that grow on the borders of their ecological range, will be most susceptible (Biodiversity Assessment of Belarus, 2001). Long term scientific data could reveal important ecological findings at genetic, population, and community level measures.

- Threat: Illegal logging and forest poaching

The Ministry of Forestry reported 2,890 cases of illegal logging in 2004 totaling about 8,343 cubic meters of timber. According to their records, they found and punished about 75% of the violators. Illegal logging is less today than in the peak year of 2000, when 4,181 illegal harvests stole 11,317 cubic meters of timber. The strong state government deserves credit for careful watch on illegal logging. Nonetheless, threats from illegal logging remain, especially when comparing the high illegal logging operations from neighboring Russia and Transnistria in eastern Moldova. Some scientists identify over harvesting as a cause behind the decline of the wood grouse in Polessia region. Moreover, some observers noted aggressive logging in some national parks and protected areas; especially for old growth trees. Local abuses, real or suspected, have frequently provoked great public indignation. The ongoing NGO campaign against forest-cutting in the Belovezhskaya Pushcha national park is an example.

In addition to illegal timber cutting, unregulated collection of mushrooms, berries, medicinal plants, nuts, and other non-timber forest products threatens shrub, herb, and other understory communities.

Depending on the scale of these activities, illegal or unsustainable logging may represent an important threat to biodiversity and should be stopped by clear authority and forceful management by the Ministry of Forestry. Several observers noted unsustainable hunting practices in nature reserves. If true, this is a significant threat to biodiversity and should be stopped.

- Threat: Poor forestry practices

Forest rehabilitation and restoration have been very successful in quantitative terms. But these practices create uneven age structure and species composition in reestablished forests. As a result, Belarusian forests are relatively young without the full genetic stock of old growth forest systems. This includes not only diverse tree species, but microbial communities, understory vegetation, wildlife communities, and other flora and fauna with climax forests. Only 5% of current forests are old growth systems. Young, low diversity forests may become less resistant to diseases and pests along with climatic changes. Current spruce forests are suffering through an attack of bark beetles; however Ministry scientists believe it is part of a long term cycle.

To maintain the long-term resilience and long-term biodiversity of the forest ecosystem, the Ministry of Forestry should continue to stress the ecological benefits of forests and balance commercial and recreation interests to achieve conservation goal, especially related to clear cutting patterns and the age limit of harvested species.

3. Rivers, Wetlands, and Aquatic Systems

a. Status and Trends

Hydrological Modifications

In the 1950s, before the land drainage program began, bogs covered 4.13 million ha or almost 20% of the entire country. The land drainage and reclamation programs of the 1960s and 1970s, reduced bogs and wetlands by about half to about 2.3 million hectares, mostly open bogs and woodland swamps. The aggressive land drainage activities in the 1960s and 1970s caused significant alternations to the aquatic habitats especially in the southern regions. These activities dried much of the marsh lands of the Polesseye region and plowed them over. In some cases, the water table dropped two to three meters and adversely affected many hydrophilic plant species.

To control floods, drain agricultural lands, and design aquaculture facilities, Soviet planners also created a network of water reservoirs, artificial canals and drainage ditches that disrupted migration corridors. They also created about 130 artificial reservoirs and developed 11 large fish farms. Fishery managers introduced carp species from the Amur River in the Russian Far to support aquaculture activities. Other invasive species soon followed including the ratan gob (*Eleotris* family) and the American crayfish (*Orconectes limosus*) first detected in 1997. Other projects created 17,051 km of drainage canals mostly in the lower Dnieper and Pripyat River basins. These land drainage activities increased aquatic sediments and silted over spawning and breeding areas. Over the last years, a number of high value fish species have disappeared, such as Brook Trout and other salmonids; while the number of low-value species, such as carp, has increased, especially in Polesseye lakes and rivers.

Moreover, hydrological modifications affected bird populations, as well. The flood plains of the Pripyat (east-west) and Dnieper (north-south) Rivers, represent important migratory corridors for birds. According to government estimates about 50 thousand geese, 30-50 thousand wigeons, and 70 thousand ruffs migrate along Pripyat river corridors. According to some studies, drainage and hydrological activities adversely affect migratory species. On the other hand, other species such as the bittern (*Botaurus stellaris*) benefit from increased fish and insects associated with artificial ponds.

Water objects that drop the water table, divert river flows, and dike natural floodplains result in increasing number of fires in meadows, pastures, and lowland forests. Adding to the problems of desiccation, local people often burn meadows, especially in the spring. These fires have a devastating impact on local wildlife as they destroy everything, often in spring breeding seasons.

In the current situation, many of these hydrological infrastructure projects lay dormant and/or poorly maintained. With drops in government subsidies along with increases in energy costs, collective farmers abandoned marginal lands and left a legacy of poorly maintained system of ditches, canals, levees, pipes, and pumps. In 1998-1999 inventoried drained lands and designed a “Program for the preservation and use ameliorated lands 2000-2005.” Currently the program funds projects to rehabilitate canals and decaying equipment. Moreover, the Government of Belarus maintains river dredging and flood control projects; especially in the Pripyat River basin.

In broad measure, the consequences of large-scale drainage projects tended to modify habitats from wetlands, to fields, then possibly to deserts as the water table dropped and soil erosion increased. However, few data quantify the biodiversity impacts of these changes. One scientist who studied land use changes in the Breast oblast said, in some cases, the number of species increases along with the landscape diversity caused by landscape “patches” and “edges.” However, data showed the disappearance of rare orchids (*Cypripedium calceolus*) and other indicator species along with the introduction of new flora and fauna are usually adapted to more southern, drier habitats (xerophilic species).

Water Pollution

Sewage and chemical discharges enhance eutrophication of water ecosystems, which is followed by changes in species and community composition of aquatic flora and fauna. Eutrophication causes a fast development of blue and green algae (water inflorescence) followed by low levels of dissolved oxygen and decreased viable habitat for important fish. Industrial discharges of toxic materials such as heavy metals and persistent organic compounds can directly kill fish and birds, and they accumulate in organs and tissues to be transferred through the food chain and disrupt breeding and behavioral patterns in higher trophic levels.

Water quality is measured against the established maximum allowable concentrations of pollutants. The Belarusian limit values are generally more stringent than the international values. Nitrites, ammonium, metals, phenols, and oil products are the most widespread pollutants of surface waters. Surface water quality reports use a water pollution index for chemical quality and three indices for biological quality. For chemical quality the index is based on six parameters: dissolved oxygen, BOD5, ammonia, nitrite, oil products and zinc.

According to the water pollution index, 41% of surface waters were classified as relatively clean, 58.4% as moderately polluted and 0.6% as extremely polluted in 2003. The most polluted river stretches were Uza down from Gomel, Pripyat down from Pinsk, and Svisloch down from Minsk and near the Svisloch settlement. Between 1997 and 2003, total water consumption fell by 5%; while industrial consumption fell by 17% following a trend that began in the 1990s.

Water Quality Monitoring

The National Centre for Radiation Control and Environmental Monitoring (NCRCEM) monitors surface water quality at 134 observation points, 203 gauges in 70 rivers, 14 lakes, 10 reservoirs and one canal in the basins of the rivers Zapadnaya Dvina. Most observation points are near large urban areas and industries with a significant adverse impact on the water environment. The geographical distribution of observation points is biased towards big rivers such as the Neman, Zapadnyi Bug, Dnepr and Pripyat. There are few observation points on lakes and small rivers. To adopt a modern approach to surface water monitoring, Belarus would have to set up at least 15 background monitoring stations or 10% of the overall water-monitoring network. Since 2003, water sampling and analysis has started at 11 transboundary gauges. Since April 2004 water quality has been monitored at 35 observation points on transboundary rivers.

Some 50 parameters are used to assess water quality, including chemical composition, suspended and organic matters, biogenic parameters, main pollutants, heavy metals and pesticides. Samples are taken 4 to 12 times a year. There is no automatic monitoring station to ensure continuous water-quality monitoring in Belarus. Hydrochemical measurements are supplemented by hydrobiological observations to provide an integrated assessment of the state of water ecosystems. These observations are made at 95 stationary points and 138 gauges in 74 water bodies. Four parameters are measured: phytoplankton, phytoplankton, zooplankton and zoobentos. The frequency of these observations has been generally reduced from 7 to 3 times a year because of resource constraints.

Since 2000, Belarus has been developing a new local monitoring system to provide information about the pollution loads from large industrial concerns, and then in turn link that data to ambient water quality measurements to determine environmental impacts. In 2003, 80 enterprises reported data on wastewater discharges that covered about 75 to 88% of discharges to the major rivers. Water quality measurements were made upstream and downstream from these facilities, and a considerable number of them failed to comply with established limits.

b. Threats to Biodiversity

There are several key threats of note to the rivers, wetlands, and aquatic systems of Belarus.

- Threat: Hydrological modification

Hydrological modifications threaten biodiversity primarily by destroying habitat. Land drainage and reclamation programs have reduced the coverage of bogs, wetlands and woodland swamps, and have resulted in significant alternations to aquatic habitats, especially in the southern regions. In some cases, the water table has dropped by two to three meters and adversely affected many hydrophilic plant species. The creation of a network of water reservoirs, artificial canals and drainage ditches disrupted migration corridors.

The use of some of these reservoirs for aquaculture of non-native species has led to the introduction of invasive species into the country's waterways. These invasive species threaten biodiversity by competing for food supply or by predating on native species. Due to invasive species and increased aquatic sediments that have covered natural spawning and breeding areas, high value fish species have disappeared while the number of low-value species has increased.

- Threat: Illegal fishing

Fish poaching eliminates local populations of fish species. The DevTech team met observers who described cases of local populations using indiscriminate nets, dynamite, and electrofishing to catch river fish. These same observers distinguished the relative impacts of local, traditional hunting and fishing from those caused by wealthy foreign trophy hunters. While they criticized river electrofishing, they saw relatively little impact from rural people taking a few animals from *zakazniks* and less strict protected areas. One observer noted electroshock fishing in the Neiman River, especially for species such as Atlantic salmon and sturgeon.

4. Public Awareness and Socio-Economic Issues

a. Status and Trends

Human activities related to agriculture, forestry, hunting, fishing, and often recreation depend on natural resources and directly impact biodiversity. In these ways, public perceptions, attitudes, and relationships with the natural world can be assets or threats to biodiversity. The Belarusian people have a strong tradition of nature use and an historic culture that evolved out of its forests, fields, and rivers. Rural people hunt and fish like they have for generations. They collect mushrooms, berries, and medicinal plants from the forest and they plant crops in both modern and traditional ways. These factors determine the successful implementation of biodiversity conservation programs and they lie at the root cause of any problems related to wildlife poaching, illegal timber harvesting, and respect for nature reserve boundaries.

Demographic and health indicators have dropped in recent years; with declines in fertility rates, drops in life expectancy, and increases rates of infant mortality. Due to Chernobyl contamination, Belarus has higher than average incidence of diseases, especially cancers among the young.

Poverty rates have declined and GDP has increased over the last ten years. In 1995 approximately 45% lived below the World Bank poverty standard; while in 2004, only 18.5% were considered poor. The rates of extreme poverty declined even more from about 33% in 1995 to 7% in 2004. In this same period GDP per capita increased 62%; from US\$1,032 per person in 1995 to \$2,330 per person in 2004. The latest available figure (2004) shows an 11.4% growth rate and a GDP 113.4% greater than in 1989. By these measures, poverty in Belarus is a less significant factor in biodiversity loss than in neighboring Moldova and Ukraine.

Environmental Awareness and Media

Environmental topics are regularly covered by the mass media. *Cultura*, *Minskiy Kurier*, *Respublika*, *Sovetskaya Belorussia* and *Vecherniy Minsk* are among the most active newspapers. There are also specialized

periodicals like those of the Ministries of Education and of Forestry, and the Belarus Society of Hunters and Fishermen. Information ecological centre Eco-Info has recently been established at the Central Scientific Library of the National Academy of Sciences to facilitate public access to environmental information, primarily by researchers as well as teachers, students and schoolchildren. It issues an electronic bulletin Zelenaya Belarus (Green Belarus) every other month and sends it to 32 organizations and 120 private users. The Gomel regional wildlife protection NGO Zoomir publishes a monthly newspaper Mir Zhivotnykh (World of Wildlife) circulated in 2,500 copies among children and teenagers.

Since 2001, attempts to improve environmental awareness have been initiated. Belarus Radio broadcasts “Ecological Monitoring” each Sunday, although the program’s duration has twice been reduced recently. In 2005 the national TV channel “Mir” launched a weekly program “Million of questions about nature”. On Brest oblast radio and TV, there are regular programs “Nature and Man” and “Brestchina Zapovednaya” (“Nature Reserves of Brest Region”).

Since 2001, the Ministry of Natural Resources and Environmental Protection actively has expanded its promotion of activities to raise environmental awareness. The Ministry organizes press conferences and meetings of its staff with journalists, publishes journal “Rodnaya Priroda” (12 issues a year since 2004), press releases and various information materials (posters, booklets, calendars, etc.), arranges for environmental advertising in the capital’s streets and helps to produce promotional TV clips. It has contracted the Belarus cable agency BelTA and the INTERFAX private information agency to search for environmental news, distribute it and post it on the Internet, and the “Belarusskaya Niva” and “Narodnaya Gazeta” newspapers to publish a regular environmental page. Since 2003, the Ministry has organized an annual national ecological forum that includes activities such as exhibitions, a film festival, photo and drawing competitions, and demonstrations of best environmental products and practices.

Regional environmental authorities, educational institutions and NGOs have launched numerous environmental actions involving children and youth, e.g., the creation of informal environmental “inspectors” and groups of environmental volunteers.

Generally speaking, however, there are difficulties to forming and maintaining NGOs. The registration process for NGOs is complicated, financial assistance for NGO activity is lacking, and, the system to register small grants is complicated and not transparent.

Ecotourism

Tourism and recreation activities have great potential for Belarus and the government has targeted this area for growth. This includes activities for bird watching, photo-safaris, trekking, canoe trips, bicycling, horseback riding, and visits to rural farms. The national parks, zakazniks, and Important Bird Areas (IBAs) represent critical assets to this rural economic development strategy. Also, the rural agricultural community has developed a unique agro-ecology tourism concept that allows visitors to stay at local farms and participate in traditional Belarusian folk culture.

In 2002, the government adopted the National Programme for Tourism Development in Belarus 2001-2005. It aims to establish and develop a modern and competitive market-type tourism industry that meets the requirements of national and foreign tourists. This will create local, rural jobs in resource-rich areas, generate income, bring in foreign currency, and raise public awareness related to cultural and natural heritage. From the January 2003 to September 2004, the Ministry of Sport and Tourism registered 554 tourism activities licenses, including 476 for tour operators. The State Customs Committee reported that in 2001, about two million foreigners entered the country, of whom about 270,000 stated “tourism” as the main objective of their visit.

Agro-ecological tourism can be an important asset for biodiversity conservation. By following international guidelines for sustainable tourism, individuals and small business owners can advocate for better natural

resource management and raise public awareness related to wise nature use. The DevTech team met NGOs, local government officials, and reserve managers who supported the concept and asked for international assistance and experience. However, pressures caused by too many or the wrong kind of tourists can become threats to biodiversity. This can be especially true for lucrative hunting trips to protected areas.

NGO Concerns

More than 50 non-governmental organizations (NGOs) and associations are registered and operate in Belarus whose activities are linked, to some extent, to ecological problems and, in particular, to issues related to the conservation and sustainable use of biological diversity. However, in more than 30% of the cases their activities are not supported by real and practical steps mostly because of insufficient financial support and logistics, lack of encouragement on the part of policy-making authorities and other governmental bodies, as well as low social activity of the population in solving environmental problems. Only few organizations pay attention to some aspects related to the biodiversity problems.

Further, changes in the laws under which the non-governmental organizations (NGOs) function have had a dramatic impact on the NGOs operations. Judicial authorities monitor NGO compliance with the strict legislation to the point that their efforts are focused on reporting rather than implementing their desired programs. There is no law on charities; therefore, the tax-free status for NGOs results in difficulties in fiscal operation. For example, NGOs have only one source of funding, namely foreign assistance funding. Relatively recent regulation changes in foreign assistance funding have resulted making access to the NGO source of foreign assistance funding more difficult. Additional restrictions on funding have made the operations of the NGOs in Belarus difficult.

One of the most important of the organizations paying attention to aspects related to the biodiversity concerns is Birdlife Belarus (APB). One of the main APB projects has been the preparation of the book entitled "IBP of Belarus." A description of the background to the book follows.

A total of 21 Important Bird Areas (IBAs) have been identified in Belarus, covering 6,180 km² or 3% of the area of the country. Fourteen sites qualify as IBAs because they hold significant numbers of globally threatened or near-threatened species (criterion A1); Aquatic Warbler (*Acrocephalus paludicola*) breeds at seven of the sites. Indeed, Belarus supports the majority of the world population of this species, according to current knowledge. Corncrake (*Crex crex*) also breeds at seven of the sites, the most important being Mid- and Lower Pripyat and the flood-plain of the Sozh river. Great Snipe (*Gallinago media*) breeds at three sites, while Ferruginous Duck (*Aythya nyroca*) and White-tailed Eagle (*Haliaeetus albicilla*) each breed at two sites.

Nine of the 21 IBAs (43%) are predominantly wetlands, five IBAs (24%) are predominantly flood-plain meadows (grassland), and four (19%) are predominantly forested. The majority of wetland IBAs covers tracts of open fen and raised bogs, flood-plain water-bodies, rivers and fish-farm ponds. Flood-plain meadows are composed of humid grasslands, steppes and dry calcareous grasslands, while forests comprise alluvial/wet forest and native coniferous forest.

Most of the currently used descriptions of IBAs were created on the basis of studies conducted 5 to 10 years ago. For that reason, it was believed important to present an up-to-date depiction picture of the contemporary conditions of bird habitats. The Birdlife Belarus NGO project to prepare the book "IBA of Belarus" will contribute to the public assessment of the current IBA conditions, provide a compilation of high quality photos of IBA habitats and birds for the book, and prepare computer maps of IBAs and other materials. The effort was supported by the Royal Society for the Protection of Birds (RSPB), the BirdLife International Partner in the UK.

Other important activities of the Birdlife Belarus NGO are as follow:

- Another Birdlife Belarus project is the “Management Planning for Conservation of Fen Mire Biodiversity in Belarus” to prepare management plans for the conservation of mesotrophic fen mire biodiversity at three key sites in Belarus: the Sporovo mire, the Zvanets mire and the Dikoe mire.

Mesotrophic fen mires have almost disappeared this century as a result of drainage, land reclamation, peat extraction, development and changes in surrounding land-use and water level. Their range is now almost exclusively restricted to Belarus, Poland, Ukraine and Russia. The small area that remains is under continuing threat as in the past. The fen mire habitat is vital to a range of species of conservation concern, some of which are globally-threatened: for example, half the world’s population of the threatened aquatic warbler is found in the fen mires of Belarus.

The project, which was funded by the Darwin Initiative for Survival of Species (Department of Environment, Transport and Regions, UK), RSPB and UNDP was implemented in cooperation with the National Academy of Sciences of Belarus and the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus, as well as local authorities.

- The Birdlife Belarus NGO implemented a project entitled “Number and Distribution of Lesser and Greater Spotted Eagles in Belarusian Polesia:

The Greater Spotted Eagle (*Aquila clanga*) is classified as a "SPEC1" endangered species in Tucker & Heath (1994), indicating that it is a threatened species whose breeding population is less than 2,500 pairs and classified as a vulnerable species globally. The total number of pairs in Europe is unknown but has been estimated to be below 1,000. In Belarus, Greater Spotted Eagle breeds in large tracts of old damp and swampy forests, but its density and distribution are nearly completely unknown.

The Lesser Spotted Eagle (*Aquila pomarina*) is classified as a "SPEC3" rare species in Tucker & Heath (1994), but according to current information it should be in SPEC category 2, indicating that it is a species whose breeding population is concentrated in Europe, but which has an unfavorable conservation status there. Recent population figures may have underestimated the actual size of the European Lesser Spotted Eagle population by at least 10,000 pairs. Re-estimates of the local Lesser Spotted Eagle population sizes were conducted during the last 5 years in several countries. For some regions (e.g., Bulgaria, Romania, northern Caucasus) new estimates surpass older ones ten-fold.

To find out precise numbers and distribution of lesser and greater spotted eagles in Belarusian Polesia a pilot research projects was conducted by APB in 1999. The results of the censuses confirmed existence of a large previously unknown Greater Spotted Eagle local breeding population in Polesia.

In general the research has shown noticeable differentiation of the Spotted Eagle species in Belarus. The project has also proved that priority should be given to more careful study of Greater Spotted Eagle as a globally threatened (SPEC1) species, whose status in Belarus remains unclear. The project is supported by the RSPB, the BirdLife International Partner in the UK.

- Birdlife Belarus NGO project entitled “Bittern in Fishponds of Belarus.”
One of the bird species, considered to be the best indicator of trends in wetland bird populations and condition of their habitats, is the bittern. Studies of the bittern ecology within the frameworks of pilot research project initiated by RSPB were conducted at one of the typical Belarus fish-farms. A major outcome of the study in 1999 was fish-ponds offer an almost unlimited amount of feeding resources for the bittern (mainly fish and insects). The project was supported by the RSPB.

b. Threats to Biodiversity

Although the NGOs in Belarus function under a greater governmental control than in most countries, the NGOs have had successes and make significant contributions to the protection, conservation and enhancement of the Belarusian biodiversity base. Continued progress may be encouraged.

- Threat: Poaching and unsustainable tourism

Illegal harvest of wildlife and animal species represents a threat to biodiversity. By removing large males from wildlife populations, hunters not only diminish the total numbers of individuals, but also change the age and gender structure of target species. Affected illegal target species include deer, boar, brown bear, lynx, elk, beaver, wood-grouse, otter, and bison. Moreover, hunting and human activities can stress animals and disrupt behaviors related to migration, reproduction, and resting; especially during mating seasons. Badly controlled or illegal hunting is a factor in population declines of these species. Several observers described inappropriate or illegal hunting activities. In several cases, persons described overly aggressive hunting practices in national parks. Eager for foreign currency or influence, the government may issue hunting permits to wealthy foreigners or others to hunt in national parks. Similar threats occur to aquatic species as poachers use nets, dynamite, and electrofishing to take fish.

- Threat: Lack of public awareness and weak public participation

Public perceptions and attitudes remain a threat to conservation. According to an opinion poll conducted in 2002, 36% of the population is worried about environmental conditions, especially water pollution. Moreover, only 10% of city dwellers considered that they had sufficient environmental information and 90% of respondents did not know their rights to access environmental information. For these reasons, more work needs to be done related to citizen access to information and participation in decision making. Furthermore, environmental NGOs with emphasis in biodiversity activities which could protect, conserve or enhance the natural resource base are not currently funded by USAID Belarus. The funding decision is not at question; rather, the difficulty of the NGO to function in Belarus under such severe operating conditions could discourage a proposal from an NGO to USAID for funding. The local NGO must be able to organize, function relatively freely, and focus on the biodiversity tasks at hand rather than being consumed with bureaucratic actions that restrict their operations.

5. Governance Issues

a. Status and Trends

Since 2001, governance issues in Belarus have drawn international attention. The Belarusian governance concerns have been focused at the highest levels within the country. Suffice to say that similar concerns have been raised at the biodiversity levels, as well.

In Belarus, the president plays a strong role in biodiversity conservation. The Affairs Management Department of the President manages protected areas (*zapovedniks*), preserves (*zakazniks*), and national parks. In 2003, the former Department of Protection of Fishing Resources and Game of the Ministry of Natural Resources and Environmental Protection was transformed into the State Inspectorate of Fauna and Flora Protection under the President of Belarus. This Inspectorate is a specialized state body responsible for preventing poaching and illegal logging and it exercises control over use of flora and fauna.

b. Threats to Biodiversity

Good environmental governance often depends on good laws, strong and fair enforcement, transparent and accountable government agencies, public access to information, and active citizen participation in local environmental decision-making. On the other hand, strong environmental protection and strict protected area management can potentially result from a strong, yet undemocratic leadership.

- Threat: Weak application of rule of law in regard to harvesting forest resources, hunting, and poaching
The concentrated management of the protected lands in the Office of the President has had negative impacts on biodiversity. Some of the forest resources in the protected lands have been harvested for sale to earn foreign currency for Belarus. It is assumed that these timber harvests have been conducted without basic regard to the natural resource base and, consequently, detrimental to the biodiversity present in the protected lands. Individuals have had access to hunting rare species on the protected lands of Belarus since the Presidential Decree superseding the existing Law on Environmental Protection in effect, put responsibility for the management and operations of all the protected areas of Belarus under the Office of the President. Some hunting expeditions have been on protected areas and some out of season.
- Threat: Lack of coordination and lack of resources to promote conservation
Government ministries and NGOs lack the financial resources to adequately implement their programs. These stand out as a major factor limiting conservation governance.
- Threat: Lack of separation of responsibilities for biodiversity conservation
In certain areas cooperation between various government agencies is insufficient and may result in the inefficient use of resources, a lack of transparency in decision-making, and damage to the environment. This concerns forestry and protected areas, including fishing and hunting, where responsibilities are split between the Ministry of Natural Resources and Environmental Protection, Ministry of Forestry and the Affairs Management Department of the President.

The separation of responsibilities also is applicable to policy development and decision-making functions. The Ministry should consider establishing relevant departments and assigning the policy development and decision-making functions currently performed by specialized inspectorates to them. It should also consider separating the tasks of issuing permits and enforcement, currently performed by specialized inspectorates.

SECTION III: ACTIONS TAKEN BY THE GOVERNMENT, DONORS, AND NGO COMMUNITY

The Government of Belarus has taken a considerable number of actions to conserve its biodiversity. This section will present an estimation of such actions as follows:

- Protected Areas and Landscape
- Policy, Law and Civil Society
- International Agreements, Commitments and Donors.

A. Protected Areas and Landscape

Belarus' system of protected areas has had mixed results in conserving and protecting the country's biodiversity. There have been several positive steps in the government's management of protected areas. The overall percentage of protected areas has increased from 7.4 percent of the country's territory in 1997 to 7.6 percent in 2004, and the government hopes to increase this to 9 percent by 2015. One other positive result of protected lands has been that the government has been able to reintroduce a stable population of the once-wild European bison in Belovezhskaya Puscha.

However, there have been concerns about the level of how "protected" these protected areas are. While much of the burden for managing protected areas falls on the Ministry of Natural Resources and Environmental Protection, there are overlaps with the Ministry of Forestry and the Affairs Management Department of the President. This has severely hampered the ability of the Ministry of Natural Resources and Environmental Protection to provide any kind of consistent policy and management capacity. There is also little transparency in permitting and other decision-making activities, as overlaps in responsibilities across ministries and offices reduce opportunities for clear lines of authority and processes.

1. Specially Protected Areas

Belarus has preserved portions of its landscape in various protected areas. These types of protected areas include: national parks; strict nature preserves (*zapovednik*); preserves (*zakaznik*); and nature monuments. See Map , Annex A. The Law on Specially Protected Natural Areas (1994, last amended in 2000), defines these areas under legal status and manages them through several ministries. Among other protected sites are sanctuaries, natural monuments, reserves, which include unique or typical landscapes, swamps, forests, biological, geological and hydrological sites. In 2004, Belarus listed 16 million hectares, or about 7.6% of its landscape in protected areas. This is an increase over 1997 and includes some changes in status for several areas. Belarus plans to extend these areas to 9% by 2015. In recent years, some *zakazniks* were removed from the list because they did not meet requirements of new legislation. Table 1 below summarizes the current status and trends since 1997.

Table 1. Protected Areas

Categories	1997	2004
Strict nature reserves (<i>Zapovedniks</i>)	2	1
National Parks	3	4
<i>Zakazniks</i> , national importance	85	97
<i>Zakazniks</i> , local importance	697	456
Nature monuments, national importance	283	337
Nature monuments, local importance	378	572
Surface (million hectares)	14	16
Percentage of the territory	7.4	7.6

Source: Ministry of Natural Resources and Environmental Protection, 2004.

2. Zapovedniks and National Parks

National parks play an important role in biodiversity conservation in Belarus. The strong hunting and fishing traditions of Belarusians help define the character of national parks. For example, Belovezhskaya Pushcha has served tsarist and Polish royalty for centuries as a favorite European hunting spot. In this context, national parks serve an important part of the national tourism development strategy. At the same time, national parks serve a critical biodiversity conservation goal by protected rare and endangered species. Once eliminated from the wild, the European bison has been reintroduced to Belovezhskaya Puscha and grown to stable numbers.

However, competing objectives between tourism development and conservation may result in adverse impacts on biodiversity. Under a 2003 Presidential decree, the Affairs Management Department of the President is responsible for the overall management of the specially protected areas; one zapovednik and four national parks. This includes efforts to preserve flora and fauna and to regulate economic activities, including tourism, poaching, and illegal logging in the park. Several observers noted aggressive hunting programs designed to attract wealthy Europeans paying to hunt for spring birds and rare species, including bison. Other comments included descriptions of logging in old growth forests and inappropriate placement of tourist facilities. If true, such human activities will alter the age and gender structure of larger mammal species and destroy key old growth habitat in the forest complex.

Nonetheless, Belarus maintains a strong national park tradition that represents an asset for economic development and biodiversity conservation. To optimize these assets, parks should be managed by professionals who balance resources to achieve both tourism development and conservation goals. Specially protected areas with tourist opportunities include:

- Belovezhskaya Pushcha National Park: Situated on the Polish border, this park has a long hunting tradition dating back hundreds of years. The park includes populations of wolf, lynx and otter, and 300 reintroduced bison. Under Presidential decree (Ukaz), the park was extended from 87,400 hectares to 152,200 hectares in 2004. In 2004, it renewed a Type A Diploma earlier received (1993) from the Council of Europe for national parks.
- Narochanski National Park: With an area of 94,000 ha, the Narochanski National Park is used for the conservation and recreation.
- Braslav Lakes National Park: With an area of 69,100 ha, the park lies in the northeast lakes region with several species endemic fauna and flora.
- Pripyatski National Park: South of Minsk in the Belarusian Polesye, the park occupies 82,300 ha in the Pripyat river flood plain. The park hosts research programs to study ecosystem impacts resulting from land drainage.
- Berezinski Biosphere Nature Reserve: A UNESCO biosphere reserve since 1993, Berezinski occupies in total 120,000 ha with a protected zone of about 82,000 ha. A renowned bird watching site, the reserve renewed a Type A Diploma from the Council of Europe in 2004.
- Radiation protection areas: The Polesye Radiation Ecological Reserve covers 215,500 hectares in the southeastern part of the country. Created in 1987 to protect people from radioactive contamination, the reserve restricts human activities, but conducts rehabilitation and monitoring projects. Several observers describe in increase in wildlife and biodiversity measures due to the absence of people. To date, no data show genetic or other affects of radiation contamination.

3. International Protection Status

- World Conservation Union: Belarus has not adopted the World Conservation Union's (IUCN) classification, yet its World Database of Protected Areas includes the protected areas of Belarus. In 2004, the Database listed two protected areas of category Ia, three of category II, 340 of category III and 558 of category IV.
- UNESCO Biosphere Reserves: Belarus protected areas include three UNESCO biosphere reserves of international importance; including the addition of Pribuzhskoye Polessy in 2004.
 1. Belovezhskaya Pushcha National Park. 1978
 2. Berezinski Biosphere Nature Reserve. 1993.
 3. Pribuzhskoye Polessy Biosphere Nature Reserve. 2004
- Ramsar Convention on Wetlands: Belarus has eight wetlands of international importance under the Convention with a total of 276,307 hectares. The majority of these sites are found in the Brest Oblast. The following site descriptions were adapted from Annotated Ramsar List of Wetlands of International Importance:
 1. **Kotra**. Kotra, a 10,584 ha area in Grodno Oblast, forms part of a massive transboundary tree-dominated wetland connected to Lithuania's Cepkeliai Ramsar site. The site is said to be the last area of unutilized tree-dominated wetlands in Belarus.
 2. **Mid-Prityat State Landscape Zakaznik**. This floodplain is a key waterbird nesting and stop-over site, meeting both the 20,000 birds and 1% waterbird criteria for international importance (among others), and the river is crucial to the hydrological regime of the Polesie Lowland region and its groundwater and to the health of the Dnieper. This 90,447 ha. State Landscape reserve is in Brest oblast.
 3. **Olmany Mires Zakaznik**. This 94,219 ha National Landscape Reserve in Brest Oblast is known as one of Europe's largest natural complexes of bogs and transitional mires. It is a critical site for nesting and migrating waterbirds and a key nesting site for the globally threatened Spotted Eagle *Aquila clanga*.
 4. **Osveiski**. A large complex of lakes, forests, transition and bog mires located 150 km northwest of the city of Vitebsk, this 22,600 ha Zakaznik (reserve) is highlighted by Lake Osveia, the biggest eutrophic lake in Belarus (5,300 ha). This lake is rapidly overgrowing with aquatic vegetation but still playing a significant role in the hydrological and climatic patterns of northern Belarus.
 5. **Prostyr**. Prostyr is in Brest Oblast, and is a 6,800 ha National Landscape Reserve and an important bird area. Located between the rivers Pripyat, Prostyr and Styr, it forms a transboundary wetland into Ukraine. It is a breeding ground of the globally endangered Aquatic Warbler and known as one of the most important nesting sites during migration.
 6. **Sporovsky Biological Reserve ('zakaznik')**. Found in Brest Oblast, this 19,384 ha reserve is located in the floodplain of the middle course of the Yaselda River. The reserve includes one of the largest lowland mesotrophic sedge fen mires in Europe. It is one of the largest European habitats of the Aquatic Warbler, a globally threatened species.
 7. **Yelnia**. Yelnia is a 23,200 ha hydrological Zakaznik (Reserve). Located in Vitebsk Oblast, it is one of the largest of complexes of bogs and transition mires in the country, with numerous nearby lakes. The site is a critical migratory route for more than 20,000 waterbirds.
 8. **Zvanets**. A 15,873 ha Zakaznik (Reserve) in Brest Oblast, Zvanets is known as the largest European mesotrophic fen mire with small mineral islands dispersed throughout the area, and covered by forests and shrubs.

- Pan-European and National Ecological Network
Under the Ministry of Natural Resources and Environment Protection, Belarus is working to establish a national ecological network, which will be part of the Pan-European Ecological Network. Belarus approved the Pan-European Biological and Landscape Diversity Strategy in 1995 and planned to implement the ecological network by 2005. The ecological network plans to optimize biodiversity conservation by connecting protected areas with corridors of limited activities. Migration corridors focus mainly on north-south Dnieper and Bug rivers and east-west Pripyat River basins. This initiative also aims to incorporate biological diversity into agricultural production. Although, the ecological network has been formulated on conceptual principles, it has not yet been implemented.

In 2003, the Ministry of Natural Resources and Environment developed a program to implement their part in protecting corridors for migrating species. Based on a memorandum of understanding with eight countries (Bulgaria, Germany, Hungary, Latvia, Lithuania, Senegal, Spain, and United Kingdom) and BirdLife International, Belarus increased conservation measures for the aquatic warbler and expanded habitat in the Zvanets zakaznik.

4. Transboundary Reserves

- Pribuzhskoye Polessye Biosphere Reserve: Located in Brest oblast, the reserve is a part of the planned Transboundary Biosphere Reserve “Zapadnoye (Western) Polessye”, which will include the border territories of Poland and Ukraine. The reserve currently covers 7,900 hectares and is expected to be extended to 48,000 ha in Belarus and 200,000 ha in all three countries.
- Beloveshskaya Puscha/Bialowieza Forest: A transboundary property with Poland the complex is on the World Heritage List. (World Heritage Convention, 2004)

5. Important Bird Areas and Plant Areas

The European Important Bird Area (IBA) Programme, developed by Birdlife International helps identify and conserve key habitats and species. Belarus joined the program in 1996 and 20 sites were identified; 16 are planned to be awarded the status of the territories of international importance and four have national protection status. As of 2004, 11 important bird areas were protected; four under partial protection and the five remaining sites have no protection status. Most Belarusian sites have international significance because they host breeding populations of globally threatened bird species, such as the aquatic warbler, the corncrake, the great snipe, the white-tailed eagle and the ferruginous duck.

Important plant areas are natural sites exhibiting exceptional botanical richness and supporting an outstanding assemblage of rare, threatened and endemic plant species and vegetation complexes of high botanical value. The aim of Plantlife International’s program for important plant areas is to identify and protect a network of the best sites for wild plants, fungi and their habitats around the world, to ensure their long-term survival. Belarus has already identified ten such areas, of which eight are already in the protected areas network. The remaining areas do not yet have protection status.

B. Policy, Law and Civil Society

1. Policy Framework

The Republic of Belarus ratified the Convention on Biological Diversity in 1993. In 1997, Belarus approved an implementation strategy: The National Strategy and Action Plan for the Conservation and Sustainable Use of Biological Diversity. The most important objectives of the National Strategy and Action Plan are to:

- Improve legislation, State management and control over biodiversity;

- Assign priorities in the conservation of biological diversity among various types of economic activities;
- Develop the system of specially protected natural territories; and,
- Improve ecological education and public awareness of biodiversity conservation.

The current environmental policy in Belarus is developed through five-year "National Action Plans for the Rational Use of the Natural Resources and Environmental Protection (NEAPs)." Since 2001, two NEAPs have been developed and approved:

- National Action Plan on Rational Using and Environmental Protection in Belarus (2001-2005), Resolution No. 912 of the Council of Ministers of 21 June 2001, and
- National Action Plan on Rational Using and Environmental Protection in Belarus (2006-2010), Ukase of President No. 302 of 5 May 2006.

The five-year action plans are based on the national priorities and follow the recommendations and principles of Agenda 21 as adopted at the Rio Conference in 1992. The priority measures set out for the plans are aimed at balancing solutions for environmental and social problems with the necessity of economic development. Specifically, the NEAP for 2001 through 2005 had two key objectives: 1) to further reducing the anthropogenic impacts on the environment and improve the environmental situation; and 2) to gradually "green all parts of production and protecting the most valuable ecosystems and biological species.

In May 2004, Belarus approved the "National Strategy for Sustainable Development (NSSD) through 2020" that outlines an overall strategy for environmental protection and biodiversity conservation along with other issues related to better living conditions and public health and greater environmental security. The NSSD sets forth the principal guidelines for transition to sustainable development in two main stages:

- **Stage One** (until 2010) to further improve living standards based on the development and wise use of human capacity and a more efficient and competitive economy; and,
- **Stage Two** (2011 – 2020) to lay the groundwork for a new post-industrial information society, with a new technological basis designed to ensure a smooth transition to resource-saving production.

Part of the NSSD focuses on the rational use of natural resources and the conservation of the environment by future generations by:

- Improving environmental policy and the economic instruments for nature use;
- Protecting and rationally using natural resources;
- Safely implementing biotechnologies and ensuring biological safety;
- Safely managing toxic chemicals;
- Safely using and treating industrial and municipal waste;
- Protecting the population and the country from natural and man-made disasters;
- Ensuring environmental safety in defense facilities;
- Developing problematic regions, in particular overcoming the consequences of the Chernobyl nuclear power plant catastrophe; and,
- Harmonizing national environmental legislation with international legal acts.

Since 2001, progress has been made in defining clearer policy priorities and implementing the five-year NEAP. The major problem has been in determining the financing for the action plans and strategic programs. The funding organization has been confusing and results in difficulty in understanding just where the funding for these environmental programs, including biodiversity conservation. Because some potential funding is listed under another program's budget, there have been occasions that biodiversity activities have not been implemented simply because the funding was tied up in another program's budget. Further, such a mechanism of funding does not lend itself to estimating the country's commitment to addressing biodiversity concerns. It simply is difficult to track the financial path between commitment and program.

2. Legislative Framework

The environmental control and nature management legislation of the Republic of Belarus is based on the Constitution of the Republic of Belarus and the Concept of State Policy of the Republic of Belarus in Environmental Control. These two were in place before 2001.

Since 2000, specific laws have been passed that specifically impact on biodiversity. These include:

- The Law on Environmental Protection (1992, last amended in 2002). The Law stipulates the principles and the tasks of environmental protection, and specifies the objects (environmental media) and the subjects (citizens, legal person's administrative-territorial units and the Republic of Belarus) and their interactions. In particular to biodiversity, the Law includes guidance on protected areas environmental regulation, and ecological information, education and scientific research.
- The Law on Specially Protected Natural Areas (2000). The Law determines the legal basis for the functioning and the protection of specially protected natural areas.
- The Land Code (1999, last amended in 2002);
- The Forestry Code (2000);
- The Law on Tax for Use of Natural Resources (Environmental Tax) (2002);
- The Law on Plants (2003);
- The Law on State Ecological Expertise (2000) The Law lists what is subject to State ecological expertise, including concepts, programs, sectoral and territorial development schemes, schemes for the complex use and protection of natural resources, urban development plans and projects for all kinds of activities that might have impact on the environment.
- New version of the Law on Waste (2000); and,
- New Law on Biosafety of the Genetic-engineering Activity (9 January 2006).

In support of the legislative base, the Criminal Code and the Code on Administrative Offences contain sections on ecological offences and ecological crimes.

The environmental control laws are based on the following principles:

- State ownership of all types of natural resources that provides for the possibility of their handover to legal or natural bodies for permanent or temporary use (excluding land which can be handed over for private property for certain purposes) in accordance with the effective legislation.
 - A system for state control over environmental conditions and rational natural resources utilization.
 - Compulsory ecological examination of any economic and other projects.
 - Natural management on a payment basis.
 - A system of financial, administrative and criminal responsibility for breach of environmental control legislation and compensation of damage sustained at the cost of law breakers.
- The governing principles of the state policy in the sphere of environmental protection are:
- Priority of human life and health protection as compared to other nature management objectives, ensuring the rights of citizens to environmental conditions that are comfortable for life, labor and recreation.
 - Adherence to the requirements of environmental legislation.
 - Economically justified combination of environmental and economic interests of the society.
 - Accommodation of national interests to international interests in environmental protection.
 - Rational natural resources utilization with account of environmental capacity, the necessity for reproduction of natural resources and prevention of irreversible impacts on environment and human health.
 - Keeping public aware of nature protection objectives and close ties with public amalgamations and general public.

In addition to the Belarusian legislation, the support for conservation of the biological resource base is often enhanced by relevant international agreements and commitments. The international community, including international lending organizations, has been taking a close look at Belarus through the lens of democracy and has found the current situation and trends as unsatisfactory in terms of internal democratic standards. This results in negative implications for international cooperation on environmental protection as well. Ultimately, technical and financial assistance from donor countries and international organizations for biodiversity conservation activities is affected as well.

Since 2001, the following global conventions with impact on biodiversity have been signed, ratified, or amended. Some of the following conventions were signed prior to 2001, but have had action taken by Belarus since that date.

- **United Nations Framework Convention on Climate Change and Kyoto Protocol:** Belarus signed the Convention in 1992, ratified it in 2000, and in 2003 prepared the First National Communication. The Communication presented greenhouse gas (GHG) inventories by economic sector, provided information on policies and activities aimed at reducing GHG emissions, and assessed the potential effect of climate change on ecosystems and the national economy. Belarus is receiving technical assistance from TACIS to help implement the climate change commitments.
- **Vienna Convention on the Protection of the Ozone Layer, Montreal Protocol on Substances that Deplete the Ozone Layer:** Belarus ratified the Vienna Convention in 1986, the Montreal Protocol in 1988 and the London Amendment to the Protocol in 1996. In 2001, the Law on Ozone Layer Protection was adopted. Subsequently, an article on it was introduced into the Law on Environmental Protection in 2002.
- **Convention on Biological Diversity and Cartagena Protocol on Biosafety:** Belarus ratified the Convention in 1993 and acceded to the Cartagena Protocol in 2002. In 2003, the Ministry and the Ecological Initiative, an NGO, prepared an overview of the country's important plant areas.
- **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):** Belarus acceded to the Convention in 1995. In 2003, the Law on plants was adopted containing clauses related to the implementation of CITES.
- **Bonn Convention on the Conservation of Migratory Species of Wild Animals: Belarus acceded to the Convention in 2003:** Since then, the Ministry along with the National Academy of Sciences has developed a program of actions to implement the Convention. Also in 2003, Belarus and eight other countries signed an MOU and Action Plan on the Conservation Measure for the Aquatic Warbler, a globally threatened migrating bird. In 2004, the revised edition of the Red Data Book of Belarus was published and it included several new bird species which were simultaneously taken out of the list of hunting species.
- **Ramsar Convention on Wetlands:** Belarus ratified the Ramsar Convention in 1991. In 2000, it adopted the Law on Specially Protected Natural Areas which specified wetlands in accordance with the definition of the Ramsar Convention. In 1999 to 2002, the Ministry implemented a project with support of the UK-based Darwin Initiative Foundation and Birdlife International to develop management plans for the key low marshlands of Polesye to protect biodiversity.
- **United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa:** Belarus acceded to the Convention in 2001. In 2002, the Ministry of Natural Resources and Environmental Protection, with UNDP and GEF support, prepared a publication on "Global Environmental Conventions: Experience of Implementation in the Republic of Belarus."

- **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal:** Belarus acceded to the Basel Convention in 1999 and amended its Law on Waste in 2000 and 2002 to include the Convention's requirements.
- **Cartagena Protocol on Biosafety:** Belarus ratified the Cartagena Protocol on Biosafety in 2002. Under this Protocol, Belarus is implementing a UNEP/GEF project to develop a national system of biosafety in accordance with the requirements of the Protocol.
- **Stockholm Convention on Persistent Organic Pollutants (POPs):** Belarus acceded to the Stockholm Convention in 2003. The Convention entered into force in 2004. Belarus established a coordination council for the Convention in 2004.
- **Paris Convention Concerning the Protection of the World Cultural and Natural Heritage:** Belarus ratified the Convention in 1988. Two Belarusian sites, one cultural and one natural are on the World Heritage List. The natural site is the Belovezhskaya Puscha/Bialoweza Forest, a transboundary site shared with Poland, continues to be an important site for the conservation of biodiversity.

Belarus is a signator of the following UN Economic Cooperation for Europe (UNECE) environmental conventions with impact on biodiversity:

- **The Convention on the Protection and Use of Transboundary Watercourses and International Lakes** signed in 2003.
- **Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters and Protocol on Pollutants Release and Transfer Registers** signed in 1998, approved in 2000, continued efforts with the support of the Danish Environmental Protection Agency to implement. TESIS supports a project on environmental information, education, and public access.
- **Convention on the Transboundary Effects of Industrial Accidents:** Belarus acceded to the Convention in 2003.

Belarus also in involved in regional cooperation and cooperation with international organizations outside the UN system. Examples of such organizations follow:

- The "Environment for Europe", "Environment and Health" and "Transport, Health and Environment" processes
- Cooperation with the United Nations Development Program and other United Nations organizations
- Cooperation with the World Bank and the European Bank for Reconstruction and Development
- Cooperation with the European Union, the Council of Europe and the Organization for Security and Cooperation in Europe
- Bilateral and trilateral agreements with neighboring and other countries

Environmental laws establish the following principles:

- **State ownership.** The State owns all types of natural resources and controls environmental conditions and resource use. Resources can be temporarily handed over for use as private property for certain purposes, in accordance with the law
- **Environmental Impact Assessment.** Compulsory ecological examination for economic development and other projects
- **Cost basis.** Natural resource use determined on a payment basis that includes ideas of the value of natural capital
- **Financial, administrative and criminal responsibility.** Law breakers subject to punishment and compensation for damages
- **Priority of human life.** Human concerns and health given priority over natural resources. Management
- **Citizen environmental rights.** Laws ensure the rights of citizens to environmental conditions that are comfortable for life, labor and recreation
- **Economic balance.** Laws balance environmental and economic interests of the society
- **International priorities.** National interests accommodate international interests in environmental protection
- **Sustainable use.** Rational natural resources use based on environmental capacity, successful reproduction of natural resources and prevention of irreversible impacts on environment and human health
- **Public awareness.** Keeping public aware of nature protection objectives and close ties with public amalgamations and general public

Despite a good system of laws, some critics point out that Presidential Decrees (Ukaz) take precedence of existing laws. Some NGO observers recommend new policies and laws that better integrate better economic principles into resource management; including rents, fees, incentives, and more accurate estimates of the true value of natural capital in making resource use decisions. Others suggested legal mechanisms to stimulate more active NGO and citizen participation in environmental decisions.

For a complete list of environmental laws, please see Annex B.

3. Institutional Framework

There are about 40 ministries, State committees, and committees under the Council of Ministers in Belarus. The structure and staffing is determined by presidential decree.

The Ministry of Natural Resources and Environmental Protection is responsible for the following:

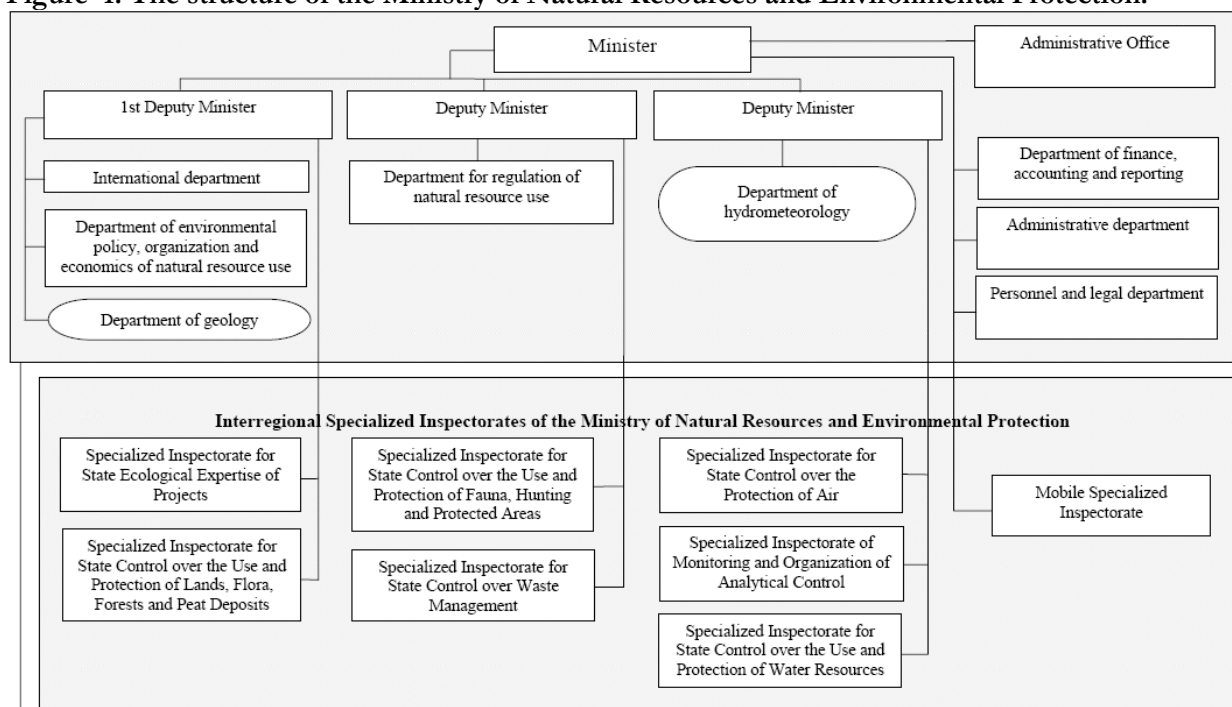
- Developing a common State policy on environmental protection and the rational use of natural resources and well as on hydrometeorological activities;
- Coordinating the activities of other State authorities, local relevant executive and controlling authorities;
- Controlling the activities in environmental protection, guaranteeing information on the state of the environment; and,
- Ensuring that protection and sanitation measures are taken.

The Ministry of Natural Resources and Environmental Protection is the major governmental body ensuring the implementation of the State policy of environmental protection and rational use of natural resources in the Republic of Belarus. It fulfils its activities through its central organization (including six Departments and two Committees) as well as through specialized Inspectorates of State Control, regional committees and district inspections. The Ministry of Forestry, the Ministry of Agriculture and Food, the Ministry of Emergencies and Protection of the Population Against the Consequences of the Chernobyl NPP Incident, the Department of Protected Territories, Forestry and Agriculture in the Administration of the President's Affairs of the Republic of Belarus play a decisive role in the management and conservation of natural resources within the respective sectors of economy. State inspection on animals and plants protection under President was founded on the 27 June 2003 and implements state control for protection and using of animals and plants.

The Ministry of Health, the Ministry of Education and other ministries have respective specific functions in carrying out environmental activities, as well. The functions covered by all Ministries are not well coordinated, often overlap, and have created a lack of transparency in many decision-making circumstances.

The Republican Commission on Problems of Biological Diversity was established to co-ordinate activities of relevant ministries and other governmental bodies involved in biodiversity conservation, as well as to develop and implement the National Strategy and Action Plan for the Conservation and Sustainable Use of Biological Diversity within the framework of the obligations arising from being a Party to the Convention on Biological Diversity (signed in Rio de Janeiro in 1992). The Commission was formed by Resolution No. 470 of 28 August 1995 by the Cabinet of Ministers. The Commission is active, participates in relevant meetings, and facilitated the UNECE Environmental Performance Review in 2005.

Figure 1. The structure of the Ministry of Natural Resources and Environmental Protection.



Adapted from UNECE Second Environmental Performance Review, 2005

At the national level, the Ministry includes six departments, two agencies, eight specialized inspectorates and a number of subordinated organizations (mostly scientific and research institutions). The specialized inspectorates perform all the tasks of the Ministry involving the protection and control of the environment

including air, water, fauna and flora, and waste. They also cover monitoring and analytical control and ecological expertise.

At the oblast level, there are committees on natural resources and environmental protection which coordinate the work of local inspectorates on natural resources and environmental protection.

Within the Ministry, the balance between the tasks related to the use and protection of natural resources and those related to environmental protection. The Ministry does not have departments responsible for water use or forestry although some of these functions are the responsibility of the respective specialized inspectorates. There is a separate Ministry of Forestry. It is not clear which entity is responsible for water use and water management.

Other Ministries perform environmental protection functions, as well. The Ministry of Health is responsible for living and working conditions and the quality of food and drinking water. The Ministry of Agriculture and Food is responsible for soil and agricultural crop protection as well as for monitoring the consequences on land and soil of the Chernobyl NPP catastrophe. The Ministry of Forestry oversees forest conditions, within and outside some of the protected areas. The Ministry of Internal Affairs controls mobile sources of air pollution through its ecological police and assists other State control agencies in environmental protection. The Ministry of Housing and Municipal Services is responsible for municipal potable water supply and quality, waste-water treatment, the collection and treatment of municipal solid waste, including from enterprises. The Ministry of Emergency Situations is responsible for handling emergencies and their consequences. The Ministry of Statistics and Analysis collects statistical data on environmental conditions and maintains the related databases.

The Affairs Management Department of the President plays a special role in nature protection with responsibilities for the management of protected areas, preserves, and national parks. In 2003, the Department of Protection of Fishing Resources and Environmental Protection was transformed into the State Inspectorate on Fauna and Flora Protection under the President of the Republic of Belarus. This Inspectorate is a specialized state body responsible for preventing poaching and illegal logging that exercises state control of the fauna and flora protection and use.

The Ministry of the Economy, the Ministry of Energy, the Ministry of Labor and Social Protection, the Ministry of Transport and Infrastructure and the Ministry of Architecture and Construction all have some level of responsibility for environmental issues in Belarus. Also, a number of other official committees participate to the development of environmental protection policy and the use of natural resources.

4. Civil Society and NGOs

According to the Ministry of Justice, there were 2,259 NGOs (245 international, 726 national and 1,288 local) and 17 NGO unions registered in the country by 1 January 2005. The Ministry qualified 47 organizations as environmental NGOs. According to the United Nations Economic Council of Europe, (UNECE) this is extremely low compared with most other UNECE countries and is clearly disproportionate to the high level of environmental awareness and education in Belarus.

The Ministry of Natural Resources and Environmental Protection cooperates with environmental non-governmental organizations (NGOs) such as BirdLife Belarus, Ecodom and Ecological Initiative. These groups disseminate information, identify important new bird and plant sites for conservation, and monitor existing sites. Other groups such as EcoPravo participate in drafting new laws and policies and preparing management plans for protected areas.

NGOs such as The Belarusian Ecotourism and Rural Tourism Association promote ecotourism as a rural economic development strategy. Created in 2002 with government support, the Association now includes 250 members of organizations and individuals. It organized an international conference in 2002 and manages

an agro-cultural tourism site Conference and site “Dudutki” located 40 km south of Minsk. The Association sponsors training, marketing, and certification programs for members, organizes workshops and conferences, and manages an agro-ecotourism site south of Minsk.

Most NGOs operate in Minsk and other big cities. They deal with environmental education or specific issues like bird habitat preservation. Most NGOs have little, if any, domestic funding. Some NGOs have been supported by foreign donors. Examples include the GEF “Small Grants Programme” (to address local concerns such as water resource management), “Environmental Education” (support for NGO publications and environmental events) and “NGO Forums” (regional capacity-building and information exchange) within the GEF/UNDP project for the environmental rehabilitation of the Dniepr River.

In 2001 the Ministry of Natural Resources and Environmental Protection established the Public Coordinating Ecological Council, which now includes representatives of 17 NGOs. The Ministry convenes the Council periodically to discuss both concrete actions and policy issues like the draft national action plan for the rational use of natural resources and environmental protection, the accession of Belarus to the Kyoto Protocol or a new draft law on environmental protection. NGOs complain, however, that they receive the discussion documents with very tight deadlines. Public coordinating ecological councils were established with all regional environmental committees in 2003-2004. The Ministry and its regional committees developed plans or programs of joint action with several environmental NGOs. NGOs must register with the government and each individual grant must be approved by the government. According to several NGO spokespersons, this review impedes project implementation.

According to the law, citizens and NGOs have the right to address their complaints, applications and proposals to public authorities and legal persons, and to receive reasoned replies in a short time. In response, oblast and local bodies of the Ministry of Natural Resources and Environmental Protection can impose administrative sanctions, including damage compensation, on offenders. NGOs often use this right to conduct a public review, or ecological expertise, of a planned activity, such as waste disposal or dam construction. The NGO can send review results to the State Ecological Expertise for possible consideration. Sample activities include:

- **Ecoline:** Conducted a public review of a solid-waste disposal site in Brest oblast (1998)
- **Ecosphere:** Organized public hearings over dam construction on the Neman River (2001)
- **Eca:** Led a public examination of polluted snow dumped into a river in Soligorsk (2001)

C. USAID Actions

At the time of this report, the USAID Regional Mission for Ukraine, Moldova, and Belarus strategy is operating under an extension of and remains the same as that of the original 2001 report. Therefore, the “extent to which” has been analyzed for ongoing programs. Proposed future actions had not yet been defined at the time this report was completed.

The USAID portfolio focuses on three strategic objectives in Belarus:

1. Private Enterprise Growth to Create Jobs and Generate Income
2. More Effective, Responsive and Accountable Democratic Institutions
3. Social Safety Net Programs to Reach Vulnerable Groups

Since the August 2001 Biodiversity Assessment, there have been several USAID programs which have contributed to conservation and environmental needs in Belarus. In addition to projects and specific examples noted below, it is important to note that overall USAID contributions toward democracy, institutional reforms, stability, and economic growth have positive, indirect benefits to conservation and biodiversity. The management and protection of natural resources is predicated on a stable government, sound policy frameworks, transparency, accountability, and active civil society and vibrant private sector,

economic incentives, and a free independent media. These contributions should not be discounted for their contributions to environment overall.

An *Other Donor* listing of relevant activities is found in Annex C. Annex H presents a listing of resources available to support the Mission from other sources within USAID.

Professional Media Development in Belarus (ProMedia II) (1999 – TBD)

The goal of ProMedia II is to strengthen the capacity of independent media in Belarus. The objectives of this assistance are: to improve the professional skills of media owners and professionals, to maintain and strengthen the legal and financial status of independent media; to increase the journalists' capacity to provide the public with objective, fact-based, and useful information and, to increase the media's access to information from Belarusian and international sources. ProMedia II works both with independent print and electronic media, the latter including private regional TV and radio stations.

The Extent to Which: At present, this activity does not contribute to biodiversity conservation. There are however, potential linkages. Print and other media materials may be provided to the media owners and professionals with conservation and biodiversity content for their various for their programming. Such conservation and biodiversity materials could come from universities, NGOs in the US and other countries, and from scientific organizations and associations. If presented as "public interest" information, such print and electronic media does not need to have Belarusian-specific conservation and biodiversity content. However, such information would have the potential to raise general biodiversity awareness.

BIZPRO Belarus Economic Education Project (2005 – 2006)

The project goal is to provide a broad range of professional and the general public with access to information regarding steps that can be taken to improve the country's long-term economic growth and, addressing one such step, foster improvement of financial reporting in Belarus to bring it into compliance with international standards. Specifically, the project will conduct thematic economic seminars and conferences supported by topical research, organize exchanges and study-tours for economic professionals, train and examine accounting practitioners in international financial reporting standards, and improve institutional capacity of select local institutions and training providers.

The Extent to Which: At present, this activity does not contribute to biodiversity conservation. However, ecotourism is one opportunity for improving the country's long-term economic growth. If materials were provided to professionals and the general public demonstrating the value of eco-tourism, the sector may begin to be developed. Thematic economic seminars and conferences, exchanges and study tours with a primary focus on international financial reporting standards, improving institutional capacity of local institutions and training providers as well as containing information relative to conservation and biodiversity issues, such as eco-tourism could be integrated into the program.

Agribusiness Volunteer Program in West NIS (2003 – 2007)

The Agribusiness Volunteer Program is a centrally-funded program providing volunteer assistance to farmers and agricultural enterprises with a goal of increasing incomes of project beneficiaries by improving productivity and access to markets. In Belarus, the program is currently focusing its efforts on improving the performance of privatized collective farms with the overall goal of increasing the incomes of their owners and employees and establishing models of successful private enterprise activity throughout the country.

The Extent to Which: Currently, the Agribusiness Volunteer Program (AVP) does not have a direct link to biodiversity conservation. American farmers may occasionally share expertise related to best management practices for biodiversity conservation. However, AVP is a natural fit as a vehicle to promote understanding and appreciation for biodiversity, particularly given the historical impacts that agriculture in Belarus has had on biodiversity.

Eurasia Foundation Program (2001 – 2006)

The Eurasia Foundation Program promotes the development of effective mechanisms for citizen participation in political and economic decision-making by engaging and strengthening civil society. The civil society program emphasizes projects that advance the financial sustainability of and create a more nurturing legal and regulatory environment for the civil society sector as a whole. Within its private enterprise development program, the foundation supports projects that the following objectives: improve business practices, increase access to capital for small businesses, and improve legal and regulatory mechanisms to facilitate business development.

The Extent to Which: Presently, this activity does not contribute to biodiversity conservation. However, the Eurasia Foundation Program has the potential to provide links to improve business practices of biodiversity related projects in areas such as eco-tourism, increased access to capital for these small businesses, and improved legal and regulatory mechanisms to facilitate business development as the numbers of eco-tourism activities increases.

SECTION IV: ACTIONS NECESSARY TO CONSERVE BIODIVERSITY

This section highlights the actions necessary to conserve biodiversity in Belarus in response to the most significant threats in the country as highlighted in Section II.C of this document. As presented in Section II.C, these threats are presented in order of significance, with the most significant threats listed first. Please note that for the purposes of discussion and due to some overlap, several of the threats discussed in Section II are combined in the discussion below.

A. Threats to Biodiversity from Agriculture

- Threat: Lack of viable habitat due to land conversion for agriculture and livestock production: As discussed in Sections II.C.1 and II.C.2, critical habitat in Belarus has been impacted both in the past by clearing of land and forests during an initial surge in agricultural activity, as well as during the current resurgence in agricultural activity. Without the necessary habitat, the biodiversity of Belarus will be negatively impacted.

Action Necessary: In order to protect habitat from additional degradation, marginal lands should be removed from agricultural production. This would allow these lands to gradual return to a more natural state, and provide increased habitat. For those agricultural landscapes that will remain in production, areas can be developed in such a way to provide expanded habitats for native species. One such example would be to provide forested buffers and wetlands integrated with fields and pastures.

- Threat: Inappropriate application and storage of agricultural chemicals: Agricultural chemicals, while increasing production yields, can have detrimental impacts on soils and waterways if not applied and/or stored properly. Haphazard chemical use can impact all levels of biodiversity, including human health.

Action Necessary: In order to minimize the impact of agricultural chemicals, the use of mineral fertilizers, pesticides, and herbicides on farm fields should be limited. In the place of high-input methods, investigations should be undertaken to develop and promote production systems which rely on low level of chemicals such as bio-organic fertilizer systems.

Integrated Pest Management (IPM) principles that incorporate a holistic approach to pest management are appropriate, as they minimize the use of toxic pesticides and chemicals. For those areas which have levels of known chemical pollution and water and soil contamination, especially close to rivers and forest zones, investigations should be done to determine the level of contamination, and relevant mitigation measures need to be taken.

- Threat: Soil degradation and erosion: Soil erosion can have a cumulative effect, in that areas which are eroded tend to become increasingly eroded over time. This magnifies the importance of protecting against soil erosion whenever possible.

Action Necessary: Good agricultural practices lend themselves to reducing excess erosion from agricultural lands. For example, farmers can practice contour plowing, no-till techniques and crop rotations to address decreasing humus organic content and maintain the integrity of the soil structure. Increased afforestation of riparian zones will trap sediments and nutrients and increase agro-ecosystems and riparian habitats.

B. Threats to Biodiversity from Forestry

- Threat: Lack of viable habitat resulting from conversion and land drainage: The dangers resulting from a lack of viable habitat have been discussed at length in this report. Decreased forest area not only reduces habitat, but leaves waterways susceptible to increased runoff, sedimentation, and nutrient and pollutant loads.

Action Necessary: In order to restore marginal habitat, it is necessary to expand fragmented forest systems into landscape-scale functioning forest networks. In addition, efforts should be made to afforest new areas (included degraded plots) and improve management in existing forests. Trained experts should be utilized to

conduct careful environmental impact assessments to determine the impacts to water quality and aquatic habitats from habitat modifications.

- **Threat: Radioactive contamination:** Should a wildfire occur in the forests that have absorbed high levels of radioactive contamination from the Chernobyl accident, dangerous levels of radiation could be re-released into the surrounding areas.

Action Necessary: It is imperative that Belarus maintain and enhance forest fire surveillance in affected areas. A high priority will be to continue to secure sufficient resources for fire prevention and fire fighting.

- **Threat: Illegal logging and forest poaching:** The main factor that leads to illegal logging and forest poaching is the selective enforcement of legislation related to these areas. Though the necessary legislation is for the most part in place, it is not always enforced. Also, the increasing harvest of non-timber forest products is of concern. These practices can have an impact not only on the resources which are removed, but can have secondary impacts on other organisms that use these harvested resources for food, shelter, or other purposes.

Action Necessary: It is necessary for enforcement to be strengthened in order to build respect for the rule of law related to illegal logging and poaching, especially for endangered, but high value species. The poachers with the greatest impact on the forests and forest resources are able to avoid capture and prosecution, and if enforcement became a priority, it is likely that illegal activities related to the forests of Belarus would decrease significantly. The harvest of non-timber forest products should be carefully monitored to ensure that resources levels are not dramatically impacted by these practices.

- **Threat: Poor forestry practices:** Belarus' current forestry practices are not in line with internationally accepted best practices. Monoculture and improper harvest has damaged the health and integrity of many forested lands in the country.

Action Necessary: The government should develop integrated forest management plans that comply with EU standards and avoid monoculture plantings in afforestation projects. It would be worthwhile to consider revising forest classification schemes in order to balance timber harvest and ecological services. Due to the growing reliance on non-timber forest products, forestry programs for non-timber forest products should be extended to ensure that negative impacts are minimized. Finally, the government could benefit from expanded certification programs, such as the Forest Stewardship Council (FSC) in forestry practices.

C. Threats to Biodiversity of Rivers, Wetlands, and Aquatic Systems

- **Threat: Hydrological modification:** Section II.C.3 described in detail the damage done to aquatic ecosystems and habitats by extensive hydrological modification in Belarus. Though much of this activity has occurred in the past, there is ongoing activity that continues to be a threat to biodiversity by degrading habitat.

Action Necessary: For any project that involves any hydrological modification, whether it be the construction of a dam, the diversion of a waterway, or the draining of a bog or wetland, it is imperative to conduct an environmental impact assessment prior to implementing any such project to determine the impacts on biodiversity. If adverse impacts are identified, it will be necessary to ensure that appropriate mitigation measures are taken in an effort to minimize these negative impacts.

- **Threat: Illegal fishing:** As with illegal logging, the main factor that enables illegal fishing is selective enforcement of laws and regulations. Some of the fish species in Belarus, such as caviar-producing sturgeon, are of great value to the nation's economy. The illegal harvest of such fish not only impacts their population and general biodiversity levels, but has an adverse impact on the overall prosperity of the country.

Action Necessary: Laws and policies must be enforced to build respect for the law to protect endangered, but high value species. It is often productive to work with local communities to establish sustainable fishery

management practices for rivers, lakes and ponds. Support can be provided for fish reintroduction programs and aquaculture practices to conserve native species.

D. Public Awareness and Socio-Economic Issues

- **Threat: Poaching and unsustainable tourism:** This threat ties in again with the lack of effective enforcement of laws and regulations to limit poaching.

Action Necessary: It is necessary to increase public awareness on the impact of the illegal harvest of wildlife and animal species on biodiversity and the country. It may be worthwhile to turn to international conventions and agreements to provide support to decrease unsustainable tourism which impacts heavily on rare or endangered species.

- **Threat: Lack of public awareness and weak public participation:** As is a problem in many parts of the world, average citizens do not appreciate the impact that their actions can have on the environment, nor do they realize the residual impacts that decreased biodiversity can have on the nation's economy, their quality of life, and the world as a whole.

Action Necessary: Whenever and wherever possible, government and NGOs should continue to promote information concerning the socio-economic value of biodiversity. All parties should ensure that citizens have access to information and have the ability to participate in decision-making on issues concerning biodiversity issues. The more knowledge and power that the public has, the more they will be able to play a significant role in biodiversity conservation.

Environmental NGOs should be strengthened; especially those related to protected area management, environmental education, and environmental policy making related to biodiversity conservation. Public participation should be encouraged by expanding the organization of environmental NGOs, support their free functioning, and promote their focus on biodiversity.

E. Threats to Biodiversity from Governance Issues

- **Threat: Weak application of rule of law in regard to harvesting forest resources, hunting, and poaching:** As mentioned numerous times in this report, selective application of the rule of law is a significant threat to biodiversity in Belarus.

Action Necessary: If a mandate is not given from high levels of the government, it will be necessary for other stakeholders such as international NGOs to play a larger role in the promotion of the rule of law in regard to harvesting forest resources, hunting, and poaching.

The Ministry of Natural Resources and Environmental Protection should consider introducing integrated environmental permits and draft appropriate legislation, including the necessary by-laws. The changes should ensure that permits contain requirements for a high level of protection of the environment as a whole and a reduction in emissions based on the comparison with the best available techniques. This could be an excellent opportunity for public outreach, education, and cooperation in managing forest biodiversity.

- **Threat: Lack of coordination and lack of resources to promote conservation:** As is often the case in developing countries, there is a lack of coordination between stakeholders in conservation efforts. This is in part due to the fact that groups struggle with limited resources to bring about positive results in their areas of focus. More coordinated efforts can allow organizations and institutions to maximize their positive impacts by minimizing overlapping efforts and building synergies.

Action Necessary: One significant opportunity for growth that has been identified is ecotourism. Belarus does still have many unique ecosystems and flora and fauna that are of interest to tourists. Positive dialogue should be encouraged that focuses on the potential return of foreign tourists to Belarus via ecotourism to support conservation of the natural resource base. Support should be given to volunteer and exchange

programs that can raise the profile of the value of the natural resource base, in general, and biodiversity, in particular.

- Threat: Lack of separation of responsibilities for biodiversity conservation: The Government of Belarus does not currently have an efficient organizational structure for addressing biodiversity conservation. Cooperation between various government agencies is insufficient and results in the inefficient use of resources, a lack of transparency in decision-making, and damage to the environment. This is of particular concern in the areas of forestry and protected areas, including fishing and hunting, where responsibilities are split between the Ministry of Natural Resources and Environmental Protection, Ministry of Forestry and the Affairs Management Department of the President.

Action Necessary: The Government should re-assign overall responsibility for controlling the use of natural resources, based on their professional competencies and scientific data to the Ministry of Natural Resources and Environmental Protection. The Affairs Management Department of the President related to natural resources should be made transparent and subject to oversight by the Ministry of Natural Resources and Environmental Protection and to public scrutiny. The Ministry should consider establishing relevant departments and assigning the policy development and decision-making functions currently performed by specialized inspectorates to them.

SECTION V: EXTENT TO WHICH USAID ACTIONS MEET THE NEEDS IDENTIFIED

At this time it is not possible to develop a section to address FAA, Sec 119(d)(2), “the extent to which the actions proposed for support by the Agency meet the needs thus identified,” as future programming information has not yet been defined. The authors of this report would like to note that to effectively cover the FAA, the USAID Regional Mission for Ukraine, Moldova and Belarus has the authority, capacity, knowledge and creativity to build this section on “The Extent to Which,” based upon the information provided in this report and their own additional knowledge and experiences not covered herein. The Mission should be well-positioned to articulate the ways in which its programs relate to environmental needs and contribute to conservation. Following the elaboration of the new Strategic Plan in 2007 and as new projects and activities are designed, the USAID Regional Mission for Ukraine, Moldova and Belarus should revisit and revise this section to address how the actions proposed for support by USAID meet the needs identified in this analysis.

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SECTION VI: CONSOLIDATED MATRIX – THREATS, ACTIONS, EXTENT TO WHICH, & RECOMMENDATIONS

The table below is a consolidated matrix which presents the threats identified, actions necessary to address the threats, extent to which USAID existing programs address the threat, and recommendations for USAID consideration. Information is extremely condensed, for more detail explanation of Threats and Actions please see Section II and Section IV respectively. The Team has made every effort to present recommendations that fit within existing and known future programming. These recommendations, while exhaustive, represent a range of measures (both low cost which fit within existing programs to more comprehensive new efforts) the Mission could take to address the threats identified. These recommendations should not be interpreted as mandatory, but wherever possible should be duly considered.

Threats to Biodiversity	Actions Necessary to Address the Threat	Extent to which USAID addresses the threat	Recommendations for USAID Consideration.
Over arching threat: Lack of viable habitat resulting from Agriculture and Agro-Ecology Systems			
Lack of viable habitat due to land conversion for Ag and Livestock Production	<ul style="list-style-type: none"> Remove marginal lands from agricultural production Design an agricultural landscape with expanded habitats for native species Protect and expand agro-ecology habitats, such as forested buffers and wetlands 		<ul style="list-style-type: none"> Maintain dialogue with GoB to highlight impact on economic status of Belarus and ecotourism Maintain dialogue with other embassy programs.
The Inappropriate Application and Storage of Agricultural Chemicals	<ul style="list-style-type: none"> Limit use of mineral fertilizers, pesticides, and herbicides on farm fields Mitigate known areas of chemical pollution and water and soil contamination, especially close to rivers and forest zones Develop and promote production systems which rely on low level of chemicals such as bio-organic fertilizer systems Practice integrated pest management (IPM) principles and agricultural handling practices Promote improved practices of agricultural chemical handling, use, and disposal 	<ul style="list-style-type: none"> No current USAID activities in place to address the threat 	<ul style="list-style-type: none"> Through volunteer program, explore contacting US universities or chemical use handler associations to focus on application and storage of agricultural chemicals. Finance key persons from GOB to US for exposure to latest IPM principles and agricultural handling practices.
Soil degradation and erosion	<ul style="list-style-type: none"> Limit excessive soil erosion from agricultural lands through good agricultural practices Practice contour plowing, no-till techniques and crop rotations to address decreasing humus organic content Afforest riparian zones to trap sediments and nutrients and increase agro-ecology and riparian habitats. 		<ul style="list-style-type: none"> Dialogue with other donor programs on policies. Explore accessing RSSA relationship with US Natural Resources Conservation Service for visits and potential relationship.

Threats to Biodiversity	Actions Necessary to Address the Threat	Extent to which USAID addresses the threat	Recommendations for USAID Consideration.
Over arching threat: Forest Ecosystem Degradation and Lack of Viable Habitat			
Lack of viable habitat resulting from conversion and drainage	<ul style="list-style-type: none"> Expand fragmented forest systems into landscape-scale functioning forest networks Afforest new areas (included degraded plots) and improve management in existing forests Conduct careful environmental impact assessments to determine the impacts to water quantity and aquatic habitats from habitat modifications. 		<ul style="list-style-type: none"> In policy discussions with GOB, promote the use of environmental impact assessments
Radioactive contamination	<ul style="list-style-type: none"> Maintain and enhance forest fire surveillance Provide sufficient resources for fire prevention and fire fighting 		<ul style="list-style-type: none"> Important USAID opportunity to strengthen GOB capacity to prevent and fight fires.
Illegal logging and forest poaching	<ul style="list-style-type: none"> Respect the rule of law and strengthen enforcement for illegal logging and poaching, especially for endangered, but high value species Work with local communities to establish sustainable fishery management practices for rivers, lakes and ponds Support fish reintroduction programs and implement aquaculture practices to conserve native species Monitor impact of non-timber forest product harvest to ensure resource levels are stable 	<ul style="list-style-type: none"> No current USAID activities in place to address the threat 	<ul style="list-style-type: none"> Promote US Embassy and USAID informational materials on rule of law and its impact of its application on biodiversity Promote community based natural resource actions, especially with NGOs
Poor forestry practices	<ul style="list-style-type: none"> Develop integrated forest management plans that comply with EU standards Avoid monoculture plantings in afforestation projects Consider revising forest classification schemes to balance timber harvest and ecological services Extend forestry programs for non-timber forest products and ecotourism Integrate market-based incentives into forestry Expand certification programs, such as the Forest Stewardship Council (FSC) in forestry practices 		<ul style="list-style-type: none"> Maintain policy dialogue with GOB on options. Explore opportunities with US Forest Service to provide mentoring to GOB.

Threats to Biodiversity	Actions Necessary to Address the Threat	Extent to which USAID addresses the threat	Recommendations for USAID Consideration.
Over arching threat: Rivers, Wetlands, and Aquatic Systems Degradation and Lack of Viable Habitat			
Hydrological modification	<ul style="list-style-type: none"> • Conduct environmental impact assessments prior to implementing any hydrological modification project to determine the impacts on biodiversity 	<ul style="list-style-type: none"> • No current USAID activities in place to address the threat 	<ul style="list-style-type: none"> • In policy dialogue with GOB, promote environmental impact assessments
Illegal fishing	<ul style="list-style-type: none"> • Respect the law and strengthen enforcement for poaching, especially for endangered, but high value species • Work with local communities to establish sustainable fishery management practices for rivers, lakes and ponds • Support fish reintroduction programs and implement aquaculture practices to conserve native species 		<ul style="list-style-type: none"> • In dialogue with GOB and others, stress application of rule of law to conservation of fish species. Once understood, the discussion could be applied to other concerns. • Explore contact with US Fish and Wildlife Service.

Threats to Biodiversity	Actions Necessary to Address the Threat	Extent to which USAID addresses the threat	Recommendations for USAID Consideration.
Over arching threat: Public Awareness, and Socio-economic issues			
Poaching and unsustainable tourism	<ul style="list-style-type: none"> • Increase public awareness on the impact to biodiversity resulting from illegal harvest of wildlife and animal species • Turn to international conventions and agreements to provide support to decrease unsustainable tourism which impacts heavily on rare or endangered species 	<ul style="list-style-type: none"> • No current USAID activities in place to address the threat 	<ul style="list-style-type: none"> • Enter into dialogue with the Embassy of Great Britain re. ecotourism activities. Other countries in the region (i.e., Slovakia) have developed successful ecotourism activities.

Threats to Biodiversity	Actions Necessary to Address the Threat	Extent to which USAID addresses the threat	Recommendations for USAID Consideration.
Lack of public awareness and weak public participation	<ul style="list-style-type: none"> • Whenever and wherever possible, government and NGOs should continue to promote information concerning the socio-economic value of biodiversity • Assure that citizens have access to information and participation in decision making concerning biodiversity issues • Strengthen environmental NGOs; especially those related to protected area management, environmental education, and environmental policy making related to biodiversity conservation • Encourage public participation by the expanding the expansion of the organization of environmental NGOs, support their relatively free functioning, and promote their focus on biodiversity 		<ul style="list-style-type: none"> • Serve as a conduit for information on the socio-economic value of biodiversity to all parties. Information available through Annex H, Resources • Maintain relationship with environmental NGOs. Even without funding, USAID can be viewed as a friend of the environmental NGO community. When possible, focus funding to exchanges and support.

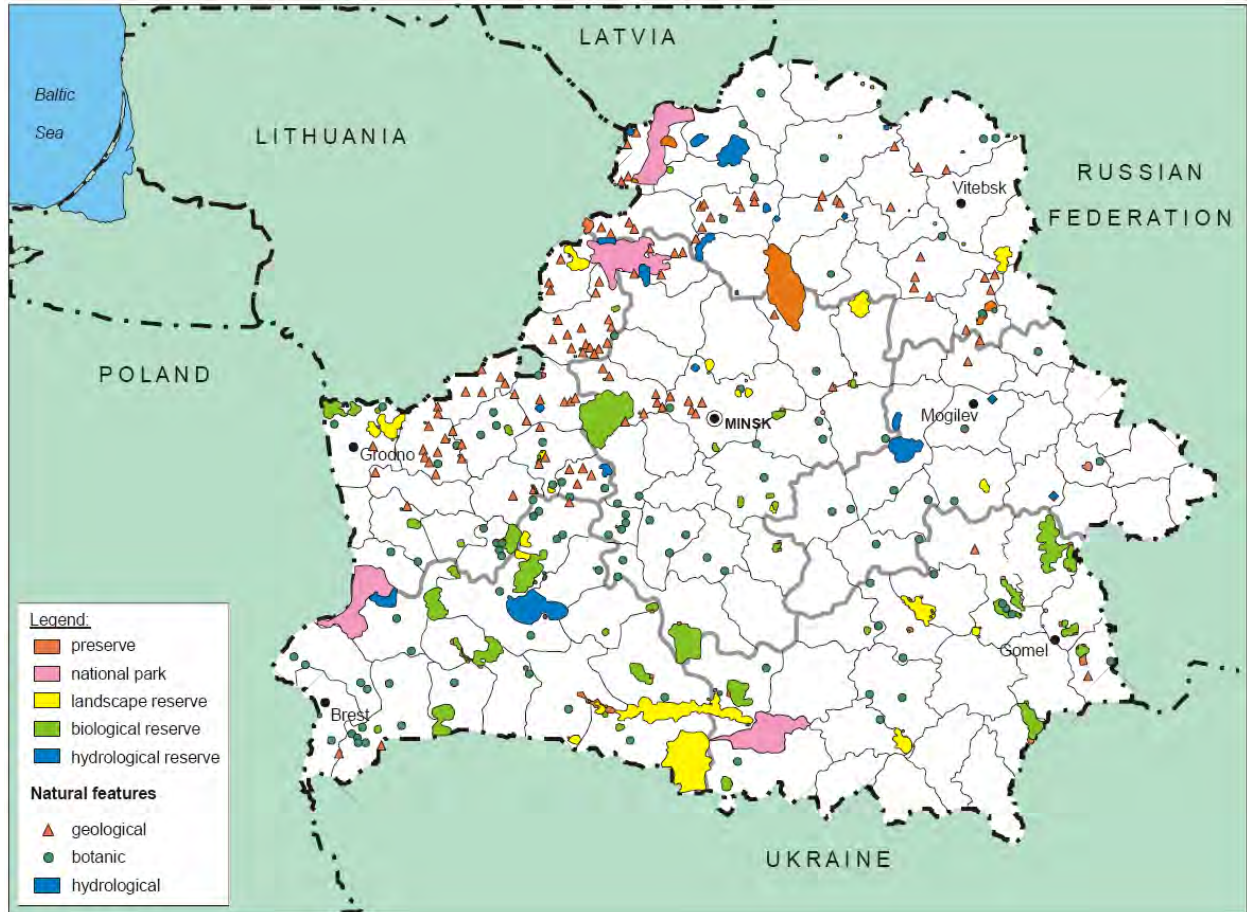
Threats to Biodiversity	Actions Necessary to Address the Threat	Extent to which USAID addresses the threat	Recommendations for USAID Consideration.
Over arching threat: Governance Issues			
Weak application of rule of law in regard to harvesting forest resources, hunting, and poaching	<ul style="list-style-type: none"> • International NGOs may play a role in the promotion of the rule of law in regard to harvesting forest resources • The Ministry of Natural Resources and Environmental Protection should consider introducing integrated environmental permits and draft appropriate legislation, including the necessary by-laws • The changes should ensure that permits contain requirements for a high level of protection of the environment as a whole and a reduction in emissions based on a reduction in emissions based on the comparison with the best available techniques 	<ul style="list-style-type: none"> • No current USAID activities in place to address the threat 	<ul style="list-style-type: none"> • In dialogue with other Embassies, international NGOs and indigenous NGOs, promote the application of rule of law to illegal harvesting of protected forest resources. • In policy dialogue with Ministry of Natural Resources and Environmental Protection personnel, develop and maintain public outreach, education and cooperation in managing the forest biodiversity and biodiversity in general.

Threats to Biodiversity	Actions Necessary to Address the Threat	Extent to which USAID addresses the threat	Recommendations for USAID Consideration.
Lack of coordination and lack of resources to promote conservation	<ul style="list-style-type: none"> • Encourage a positive dialogue focusing on the potential return to Belarus via ecotourism as a result of the conservation of the natural resource base • Support volunteer and exchange programs which raise the profile of the value of the natural resource base, in general, and biodiversity, in particular 		<ul style="list-style-type: none"> • In policy dialogue with GOB and other donors, focus on economic return to Belarus from ecotourism and consequently the value of conservation of the natural resource base. • Focus volunteer programs and exchange opportunities on biodiversity conservation
Lack of Separation of Responsibilities for Biodiversity Conservation	<ul style="list-style-type: none"> • The Government should re-assign overall responsibility for controlling the use of natural resources to the Ministry of Natural Resources and Environmental Protection • The Affairs Management Department of the President related to natural resources should be made transparent and subject to oversight by the Ministry of Natural Resources and Environmental Protection and to public scrutiny • Apply transparency to policy development and decision-making functions • The Ministry should consider establishing relevant departments and assigning the policy development and decision-making functions currently performed by specialized inspectorates to them • It should also consider separating the tasks of issuing permits and enforcement, currently performed by specialized inspectorates 		<ul style="list-style-type: none"> • In policy dialogue with GOB, stress value in separation of responsibilities for biodiversity conservation. • Explore possibility of U.S. Fish and Wildlife Service visit, exchange or training on the subject of permits and enforcement.

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ANNEXES

ANNEX A: MAP OF PROTECTED AREAS BELARUS



Adapted from UNECE Second Report for Belarus, Chapter 8

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ANNEX B: ENVIRONMENT-RELATED LEGISLATION & CONCEPTS, PLANS, PROGRAMS, AND STRATEGIES

Constitution of the Republic of Belarus, No. 2875-XII, 15 March 1994, with amendments of 24 November 1996 and 17 October 2004.

Codes (in alphabetical order)

Forestry Code of the Republic of Belarus, No. 420-3, 14 July 2000, with amendments No. 271-3, 27 February 2004 and No. 310-3, 4 August 2004.

Land Code of the Republic of Belarus, No. 226-3, 4 January 1999, with amendments No. 99-3, 8 May 2002.

Code on Mineral Resources of the Republic of Belarus, No. 103-3, 15 December 1997.

Water Code of the Republic of Belarus, No. 191-3, 15 July 1998.

Laws of the Republic of Belarus (in alphabetical order)

On Air Protection, No. 29-3, 15 April, 1997, with amendments No. 59-3, 10 July 1997.

On Drinking Water Supply, No. 271-3, 24 June 1999.

On Energy Saving, No. 190-3, 15 July 1998.

On Environmental Protection, No. 1982-XII, 26 November 1992, version of 17 July 2002, No. 126-3.

On Hydrometeorological Activity, No. 256-3, 10 May 1999.

On Information, No. 3850-XII, 6 September 1995.

On International Agreements, No. 1188-XII, 23 October 1991, with latest amendments No. 401-3, 16 June 2000 and .331- 15 November 2004. On Local Governance and Self-Governance, No. 617-XII, 20 February 1991, with latest amendments No. 362-3, 10 January 2000).

On Ozone Layer Protection, No. 56-3, 12 November 2001.

On Flora, No. 205-3, 14 June 2003.

On Protection and Use of Fauna, No. 598-XIII, 19 September 1996.

On Specially Protected Natural Areas, 3335-XII, 20 October 1994, version of 23 May 2000, No. 396-3.

On State Ecological Expertise, No. 419-3, 14 July 2000.

On Tax for Use of Natural Resources (Environmental Tax), No. 1335-XII, 23 December 1991, with latest amendments No. 134-3, 24 July 2002 and No. 167-3, 28 December 2002.

On Tourism, No. 326-3, 25 November 1999, with amendments No. 257-3, 15 December 2003.

On Waste, No. 2609-XII, 25 November 1993, version of 26 October 2000, No. 444-3, with amendments No. 134-3, 24 July 2002.

Decrees and Directives (Ukazes) of the President (in alphabetical order)

On Approval of Programme of Social and Economic Development of the Republic of Belarus for 2001-2005, No. 427, 8 August 2001.

On Approval of State Programme on Investments, No. 97, 18 February 2004, with numerous later amendments.

On Approval of State Programme on Revitalization and Development of Rural Areas for 2005-2010, No. 150, 25 March 2005.

On Establishing State Inspectorate for Protection of Animals and Plants under the President of the Republic of Belarus, No. 45, 27 January 2003.

On International Technical Assistance to the Republic of Belarus, No. 460, 22 October 2003.

On National Park Belovezhskaya Pushcha, No. 460, 27 September 2004.

On Programme for Improvement of Agroindustrial Complex of the Republic of Belarus for 2001-2005, No. 256, 2001.

On Receiving and Using Gratuitous Foreign Aid, No. 24, 28 November 2003

Resolutions of the Council of Ministers (Cabinet of Ministers) (in alphabetical order)

On Activities of Belarus State University Institution “National Research Centre for Monitoring Ozonosphere” on Organization and Conduct of Ozone Layer Monitoring, No. 1719, 12 December 2002.

On Additional Measures on Efficient and Effective Use of Fuel and Energy Resources, No. 1820, 27 December 2002, with latest amendments No. 799, 30 June 2004.

On Approval of Forest Monitoring Procedure, No. 915, 21 June 2001, with amendments No. 1179, 22 September 2004.

On Approval of List of State Scientific-Technical Programs on Solving Most Important Economic, Environmental and Social Problems for 2001-2005 (includes State Scientific-Technical Programme “Ecological Safety” for 2001-2005), No. 141, 1 February 2001.

On Approval of Main Directions of Energy Policy of the Republic of Belarus for 2001-2005 and for the period till 2015, No. 1667, 27 October 2000.

On Approval of Main Directions of Social and Economic Development of the Republic of Belarus for the Period until 2010, No. 445, 3 April 2000.

On Approval of Measures of National Programme of Tourism Development in the Republic of Belarus for 2003-2005 (Additions to National Programme of Tourism Development in the Republic of Belarus for 2001-2005), No. 1829, December 2002.

On Approval of National Action Plan for Rational Use of Natural Resources and Environmental Protection of the Republic of Belarus for 2001-2005, No. 912, 21 June 2001.

On Approval of National Programme of Land Management and Improvements of Territories of Human Settlements for 2004-2005, No. 1714, 30 December 2003.

On Approval of National Strategy and Action Plan for Conservation and Sustainable Use of Biological Diversity of Belarus, No. 789, 26 June 1997.

On Approval of Regulation on Licensing of Activities Related with Use of Natural Resources and Impact on the Environment, No. 1371, 20 October 2003.

On Approval of Regulation on Ozone-layer Monitoring within National System of Environmental Monitoring in the Republic of Belarus and Use of Monitoring Data, No. 161, 16 February 2004.

On Approval of Regulation on Procedure for Developing and Implementing National Sectoral and Regional Programs on Energy Saving, No. 1731, 11 November 1998, with amendments No. 302, 17 March 2004.

On Approval of Regulation on Procedure for Financing Scientific, Research and Development and Innovative Activities with Use of National Budget Funds, No. 1084, 10 July 1998, with latest amendments No. 282, 15 March 2004.

On Approval of Regulation on Procedure for Preparation and Implementation of State Scientific-Technical Programs, No. 1652, 29 October 1998, with amendments No. 737, 5 June 2002 and No. 282, 15 March 2004.

On Approval of Regulation on State Database on the State of Environment and its Pollution, No. 793, 1 June 2000, with amendments No. 1847, 22 December 2001.

On Approval of Regulations on Animals and Radiation Monitoring within the National System of Environmental Monitoring in the Republic of Belarus and Use of Monitoring Data, No. 576, 17 May 2004.

On Approval of Regulations on Issuance of Permits for Special Water Use and Allocation of Water Objects for Separate Water Use, No. 669, 7 May 1999.

On Approval of Regulations on Monitoring of Surface Water, Groundwater, and Air, and Local Environmental Monitoring within National System of Environmental Monitoring in the Republic of Belarus and Use of These Monitoring Data, No. 482, 28 April 2004.

On Approval of Regulations on Plants and Geophysical Monitoring within the National System of Environmental Monitoring in the Republic of Belarus and Use of Monitoring Data, No. 412, 14 April 2004.

On Concept of Development of Forestry Complex of the Republic of Belarus, No. 1502, 29 September 1999.

On Concept of State Programme of the Republic of Belarus for Overcoming the Consequences of Chernobyl NPP Catastrophe for 2001-2005 and for the period till 2010, No. 444, 3 April 2000.

On Creation of National Research Centre for Monitoring Ozonosphere, No. 484, 14 May 1997, with amendments No. 1719, 12 December 2002.

On Developing Programme of Social and Economic Development of the Republic of Belarus for 2006-2010, No. 86, 27 January.

On Establishing Fee for Issuance of Permits for Disposal of Production Waste and Special Water Use, No. 247, 26 February 2003, with amendments No. 964, 21 July 2003.

On Establishing National Commission on Sustainable Development of the Republic of Belarus, No. 197, 20 March 1996, with amendments 11 January 2001.

On Establishing National System of Environmental Monitoring (NSEM) in the Republic of Belarus, No. 247, 20 April 1993.

On Implementation of Programme of National System of Environmental Monitoring in the Republic of Belarus, No. 1344, 27 August 1998, with amendments No. 1690, 28 October 1999.

On Improving of System of Collection and Use of Certain Types of Recyclable Materials, No. 269, 27 February 2003, with amendments No. 1675, 22 December 2003.

On Increasing Efficiency of Forestry Resources Use, No. 245, 7 March 2004.

On Increasing Payments for Use of Natural Resources and Extending Application of Incentives for Nature Protection Activity, 30 June 2004, No. 787 (no longer in force, replaced by Resolution No. 118, 1 February 2005, see below).

On Local Environmental Monitoring in the Republic of Belarus, No. 201, 8 February 1999.

On Measures for Implementation of Provisions of the Convention on Access to Information, Public Participation in the Decision-Making and Access to Justice on Environmental Matters in 2002-2005, No. 1900, 29 December 2001.

On Membership of Interdepartmental Coordination Board for Implementation of Programme of National System of Environmental Monitoring in the Republic of Belarus, No. 927, 10 July 2002.

On National Environmental Health Action Plan for 2001-2005, No. 1892, 12 December 2000.

On National Landscape Preserve “Pribuzhskoye Polessye”, No. 736, 30 May 2003, with amendments No. 1179, 22 September 2004.

On National Programme for Rational Use of Natural Resources and Environmental Protection for 1996-2000, No. 667, 15 October 1996.

On National Programme of Energy Saving for 2001-2005, No. 56, 16 January 2001, with amendments No. 1820, 27 December 2002 and No. 1735, 31 December 2003.

On National Programme “Preservation and Use of Ameliorated Lands for 2000-2005”, No. 76, 20 January 2000, with latest amendments No. 1697, 31 December 2004.

On National Programme “Preservation and Use of Ameliorated Lands for 2006-2010”, No. 459, 5 May 2005.

On National System of Environmental Monitoring in the Republic of Belarus, No. 949, 14 July 2003, with amendments No. 250, 10 March 2004 and No. 298, 16 March 2004.

On Preparation of Regulation on Land Monitoring and Use of its Data, No. 250, 10 March 2004.

On Programme of National System of Environmental Monitoring in the Republic of Belarus, No. 311, 20 June 1995.

On Sectoral Programme of Communal Waste Management, No. 1232, 1 October 2004.

On Some Aspects of Processing of Plastic Waste, No. 261, 27 February 2003.

On Some Aspects of the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus, No. 1586, 31 October 2001, with latest amendments No. 303, 17 March 2004.

On State Cadastres of Natural Resources, No. 248, 20 April 1993.

On State Programme on Water Supply and Wastewater Disposal “Clean Water” 2001-2005, No. 52, 17 January 2002, with amendments No. 259, 11 March 2004.

On Tax Rates for Use of Natural Resources (Environmental Tax), No. 118, 1 February 2005.

On Unified Tariffs for Electric Energy, No. 709, 25 November 1992, with amendments No. 110, 2 March 1995.

Resolutions, Orders, Regulations and Instructions of the Ministry of Natural Resources and Environmental Protection (in alphabetical order)

Resolution on Approval of Instruction on Organization of Enterprise Control in the Area of Environmental Protection and Instruction on Procedure for Developing, Coordinating and Approving of Instruction on Implementation of Enterprise Control in the Area of Environmental Protection, No. 4, 17 March 2004.

Resolution on Approval of Instruction on Procedure for Conducting Environmental Impact Assessment of Planned Economic and Other Activities in the Republic of Belarus and of List of Types and Objects of Economic and Other Activities for which Environmental Impact Assessment of Planned Economic and Other Activities is Mandatory, No. 1, 6 February 2001.

Resolution on Approval of Instruction on Procedure for Conducting Local Environmental Monitoring by Legal Persons Operating Sources of Adverse Environmental Impact, No. 20, 22 July 2004.

Resolution on Approval of Regulations on Issuance, Suspension and Cancellation of Permits for Disposal of Production Waste, No. 21, 23 October 2001, with amendments No. 1, 11 February 2004.

Resolution on List of Data Relating to Environmental Information, No. 22, 29 May 2003.

Resolution on Some Aspects of Processing Permits for Special Water Use and Documents Submitted to Obtain them, No. 14, 2 April 2003.

Order on Checking of Organization of Enterprise Environmental Control, No. 232, 30 August 2004.

Order on Distribution of Responsibility for Implementation of Provisions of International Agreements and for Cooperation with International Organizations, No. 189, 20 July 2004.

Order on Introducing Additions to the Procedure of Issuing One-time Permits for Movement (Import, Export, Transit) of Ozone Depleting Substances and Products that Contain them via Customs Border of the Republic of Belarus, No. 387, 28 December 1999.

Order on Methodological Recommendations on Organization of Sectoral Control in the Area of Environmental Protection, No. 234, 2 July 2003.

Order on Methodology of Calculation of Ground-level Concentration of Pollutants of Various Averaging Periods Applicable to Large Point Sources, No. 390, 30 December 1999.

Regulation on Procedure of Issuing One-time Permits for Movement (Import, Export, Transit) of Ozone Depleting Substances and Products that Contain them via Customs Border of the Republic of Belarus, No. 120, 2 June 1997.

Instruction on Procedure for Conducting State Ecological Expertise in the Republic of Belarus, No. 8, 11 May 2001.

Documents of Other Ministries and Governmental Bodies

Concept of Environmental Education and National Programme of Environmental Education, approved by Resolutions of the Board of the Ministry of Natural Resources and Environmental Protection, No. 3.1, 19 March 1999, and the Board of the Ministry of Education, No. 12/362, 21 April 1999.

National Strategy for Sustainable Social and Economic Development of the Republic of Belarus for the Period until 2020, endorsed by National Commission on Sustainable Development, Protocol No. 11/15 PR, 6 May 2004, and by Presidium of the Council of Ministers, Protocol No. 25, 22 June 2004.

ANNEX C. DONOR FUNDING TABLES

Donor Funded Biodiversity Projects in Belarus

Nr	Project	Donor	Duration	Budget (USD)	Project Description
1.	Forest Biodiversity GEF Project	IBRD	Completed 1997	\$1 M	The Project was designed to initiate programs to conserve the biodiversity of key endangered forests and to link these efforts to ongoing Global Environmental Facility (GEF) supported work in the abutting Bialowieza Primeval Forest (BPF) in Poland.
2.	Dissemination of the National Biodiversity Strategy, Action Plan, First National Report to the CBD & Establishment of the Clearing House Mechanism	UNEP	Intermittent	81,000	The activity provides assistance to Belarus to meet the requirements of the Convention on Biological Diversity
3.	Assessment of Capacity-building Needs for Biodiversity, Participation in CHM and Preparation of a Second National Report (add on)	UNEP	Intermittent	184,000	The activity provided an assessment of the country's capacity-building requirements for biodiversity and other activities related to meeting the documentation requirements of Belarus.
4.	Catalyzing Sustainability of the Wetland Protected Areas System in Belarusian Polesie through Increased Management Efficiency and Realigned Land Use Practices	UNDP	2006-2011	2,191,500	The Project enhances Belarus' capacity to conserve wetland biodiversity harbored in its network of wetland reserves by enhancing the management efficiency of reserves, while at the same time integrating biodiversity conservation concerns in agricultural, forestry and flood protection activities that occur in and around wetland reserves, to ensure sustainability of conservation efforts.

Nr	Project	Donor	Duration	Budget (USD)	Project Description
	Renaturalization and Sustainable Management of Peatlands in Belarus to Combat Land Degradation, Ensure Conservation of Globally Valuable Biodiversity, and Mitigate Climate Change	UNDP	2005-2010	1,053.693	The Project addresses peatland degradation in Belarus through sustainable land management, global climate, and biodiversity while respecting the socio-economic development concerns of local communities. The Project will introduce wetland renaturalization on degraded peatlands. The project aims to resolve the decision-making deadlock relating to the use of degraded peatlands. It will significantly increase the capacity of decision-makers and land-users to deal with renaturalization issues.
5.	Catalyzing Sustainability of the Wetland Protected Area System in the Belarusian Polesie through increased Management Efficiency and Realigned Land Use Practices	UNDP -GEF	2006-2011	2.902m	The Project assists the government of Belarus to conserve and sustainable manage biodiversity in the Polesie Region through protected areas protection, and the integration of biodiversity concerns in activities related to land-use.

Source: 2004 Environmental Report, World Bank, GEF, EC, MENR, REC

Donor Funded Projects with a direct link to Biodiversity conservation in Belarus

Nr	Project	Donor (Implementer)	Duration	Budget (USD)	Project Description / Issues addressed
1.	Capacity Development for Sustainable Land Management in Belarus	UNDP	2005- 2006	38, 050	The Project enables Belarus to develop the capacity for effective implementation of sustainable land management policy as a means to improve the environment, enhance its integrity and ecosystem functions, as well as improve the social situation in Belarus, in line with the requirements of the UN Convention to Combat Desertification/Land Degradation, which has been recently ratified by Belarus.

Sources:UNDP

Donor Funded Environmental Projects in Belarus

Nr	Project	Donor (Implementer)	Duration	Budget (USD)	Project Description / Issues addressed
1.	Support Project for the “Cooperation for Rehabilitation” (CORE) Programme in areas affected by Chernobyl	UNDP	2003-2007	542,619	The CORE Programme establishes sustainable living conditions and a safe environment for the population of the four districts affected by the Chernobyl NPP accident through development and implementation of a range of activities in the economic, social, health, and cultural spheres, based on the principles of international cooperation, intersectoral and multilevel integration, and local participation.
2.	Belarus Ozone Depleting Substances (ODS) Phase-Out Project	World Bank GEF		6,900,000	The project assists Belarus in the rapid phase-out of ODS consumption, such as chlorofluorocarbons (CFCs) in refrigerants and solvents, by replacing them with cost-effective, ozone-friendly alternatives. It also supports technology transfer for the phase-out of ODS in fire protection.
3.	Belarus: Post-Chernobyl Recovery Project	IBRD Loan	2006-2023	50,000,000	The objective of the project is to provide cleaner as well as more energy-efficient heating systems through the provision of new equipment and better insulation in schools, hospitals and orphanages. The project will also replace inefficient communal boilers and dilapidated heat distribution systems. Investments in residential gas connections will also provide clean and improved space heating to households now burning contaminated wood or peat inside their homes.
4.	Energy and Environment for Sustainable Development	UNDP	2003–2007	3,120,000	The Project provides access to sustainable energy services, biomass energy for heating and hot water supply in Belarus.

Sources: UNDP, World Bank GEF

Regional Donor Funded Projects in Belarus

Nr	Project	Donor (Implementer)	Duration	Budget (USD)	Issues addressed
1.	Strengthening the Network of Training Centers for Protected Area Management through Demonstration of a Tested Approach	GEF/UNEP	2004-2007	\$1M	The project will be implemented over three years in four countries: Russia, Ukraine, Belarus and Kazakhstan. The project's goal is to improve biodiversity conservation and rural livelihoods through the better management of protected areas in Northern Eurasia.
2.	Establishment of a Transboundary Biosphere Reserve and a Regional Ecological Network in Polesie	UNESCO-JFIT In Cooperation with UNDP-GEF	2006-2007	unavailable	The Project aims to improve the quality of key policies for several productive sectors such as agriculture, forestry, flood defense in parallel to the establishment of protected areas at target sites of global importance. It also assists the government in strengthening cooperation with Ukraine on the establishment of the transborder Pripjat-Sokhid-Prostyr reserve (Belarus- Ukraine).
3.	Environmentally Sustainable Development in the Belavezhskaya Pushcha Region: Combining Protected Area Management with Rural Sustainability	UNDP	2004-2006	90,000	The Project strengthens the potential for the development of agro-tourism and eco-tourism in the Belavezhskaya Pushcha region of south-east Belarus. The primary objective of the Belarusian part of the project was providing support for local initiatives aimed at developing agro- and eco-tourism in the Belavezhskaya Pushcha region that also took into account cross-border cooperation between Belarus and Poland.

Source: GE, UNESCO, UNDPF

ANNEX D. LIST OF ENDANGERED SPECIES: IUCN & RED BOOK OF BELARUS

FISHES		
<i>Alburnoides bipunctatus</i>	(Bloch, 1782)	SPIRLIN
<i>Alburnus alburnus</i>	(Linnaeus, 1758)	BLEAK
<i>Aspius aspius</i>	(Linnaeus, 1758)	ASP
<i>Carassius carassius</i>	(Linnaeus, 1758)	CRUCIAN CARP
<i>Cobitis taenia</i>	Linnaeus, 1758	SPINED LOACH
<i>Coregonus albula</i>	(Linnaeus, 1758)	VENDACE
<i>Coregonus lavaretus</i>	(Linnaeus, 1758)	LAVARET
<i>Cottus gobio</i>	Linnaeus, 1758	BULLHEAD
<i>Cottus poecilopus</i>	Heckel, 1837	SIBERIAN BULLHEAD
<i>Gasterosteus aculeatus</i>	Linnaeus, 1758	THREE-SPINED STICKLEBACK
<i>Gobio gobio</i>	(Linnaeus, 1758)	GUDGEON
<i>Gymnocephalus acerina</i>	(Güldenstädt, 1774)	
<i>Leucaspis delineatus</i>	(Heckel, 1843)	MODERLIESCHEN
<i>Leuciscus idus</i>	(Linnaeus, 1758)	IDE
<i>Leuciscus leuciscus</i>	(Linnaeus, 1758)	DACE
<i>Nemacheilus barbatulus</i>	(Linnaeus, 1758)	STONE LOACH
<i>Phoxinus phoxinus</i>	(Pallas, 1814)	SWAMP MINNOW
<i>Phoxinus phoxinus</i>	(Linnaeus, 1758)	MINNOW
<i>Pungitius pungitius</i>	(Linnaeus, 1758)	NINE-SPINED STICKLEBACK
<i>Scardinius erythrophthalmus</i>	(Linnaeus, 1758)	RUDD
<i>Tinca tinca</i>	(Linnaeus, 1758)	TENCH
<i>Vimba vimba</i>	(Linnaeus, 1758)	ZARTE
<i>Abramis bjoerkna</i>	(Linnaeus, 1758)	SILVER BREAM
<i>Misgurnus fossilis</i>	(Berg, 1949)	WEATHERFISH
<i>Silurus glanis</i>	Linnaeus, 1758	WELS CATFISH
<i>Squalius cephalus</i>	(Linnaeus, 1758)	CHUB

AMPHIBIANS		
<i>Bombina bombina</i>	(Linnaeus, 1761)	FIRE-BELLIED TOAD
<i>Hyla arborea</i>	(Linnaeus, 1758)	EUROPEAN COMMON TREE FROG
<i>Pelobates fuscus</i>	(Laurenti, 1768)	COMMON SPADEFOOT
<i>Triturus cristatus</i>	(Laurenti, 1768)	GREAT CRESTED NEWT
<i>Bufo bufo</i>	(Linnaeus, 1758)	COMMON TOAD
<i>Bufo calamita</i>	Laurenti, 1768	NATTERJACK TOAD
<i>Bufo viridis</i>	Laurenti, 1768	GREEN TOAD
<i>Rana arvalis</i>	Nilsson, 1842	ALTAI BROWN FROG (ALTAI MOUNTAINS POPULATIONS)
<i>Rana esculenta</i>	Linnaeus, 1758	EDIBLE FROG

AMPHIBIANS

<i>Rana lessonae</i>	Camerano, 1882	POOL FROG
<i>Rana ridibunda</i>	Pallas, 1771	EURASIAN MARSH FROG
<i>Rana temporaria</i>	Linnaeus, 1758	EUROPEAN COMMON FROG
<i>Triturus vulgaris</i>	(Linnaeus, 1758)	SMOOTH NEWT

ARACHNIDS

<i>Dolomedes plantarius</i>	(Clerck, 1757)	GREAT RAFT SPIDER
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BIRDS

<i>Acrocephalus paludicola</i>	(Vieillot, 1817)	AQUATIC WARBLER
<i>Aegypius monachus</i>	(Linnaeus, 1766)	CINEREOUS VULTURE
<i>Anser erythropus</i>	(Linnaeus, 1758)	LESSER WHITE-FRONTED GOOSE
<i>Aquila clanga</i>	Pallas, 1811	GREATER SPOTTED EAGLE
<i>Aquila heliaca</i>	Savigny, 1809	IMPERIAL EAGLE
<i>Aythya nyroca</i>	(Güldenstädt, 1770)	FERRUGINOUS DUCK
<i>Circus macrourus</i>	(Gmelin, 1770)	PALLID HARRIER
<i>Crex crex</i>	(Linnaeus, 1758)	CORNCRAKE
<i>Gallinago media</i>	(Latham, 1787)	GREAT SNIPE
<i>Glareola nordmanni</i>	Fischer, 1842	BLACK-WINGED PRATINCOLE
<i>Haliaeetus albicilla</i>	(Linnaeus, 1758)	WHITE-TAILED EAGLE
<i>Milvus milvus</i>	(Linnaeus, 1758)	RED KITE
<i>Perdix perdix</i>	(Linnaeus, 1758)	GREY PARTRIDGE
<i>Coturnix coturnix</i>	(Linnaeus, 1758)	COMMON QUAIL
<i>Phasianus colchicus</i>	(Linnaeus, 1758)	COMMON PHEASANT
<i>Lagopus lagopus</i>	(Linnaeus, 1758)	WILLOW PTARMIGAN
<i>Tetrao tetrix</i>	(Linnaeus, 1758)	BLACK GROUSE
<i>Tetrao urogallus</i>	Linnaeus, 1758	WESTERN CAPERCAILLIE
<i>Bonasa bonasia</i>	(Linnaeus, 1758)	HAZEL GROUSE
<i>Cygnus olor</i>	(Gmelin, 1789)	MUTE SWAN
<i>Cygnus columbianus</i>	(Ord, 1815)	TUNDRA SWAN
<i>Anser anser</i>	(Linnaeus, 1758)	GREYLAG GOOSE
<i>Branta leucopsis</i>	(Bechstein, 1803)	BARNACLE GOOSE
<i>Tadorna tadorna</i>	(Linnaeus, 1758)	COMMON SHELDUCK
<i>Anas strepera</i>	Linnaeus, 1758	GADWALL
<i>Anas penelope</i>	Linnaeus, 1758	EURASIAN WIGEON
<i>Anas platyrhynchos</i>	Linnaeus, 1758	MALLARD
<i>Anas clypeata</i>	Linnaeus, 1758	NORTHERN SHOVELER
<i>Anas acuta</i>	Linnaeus, 1758	NORTHERN PINTAIL
<i>Anas querquedula</i>	Linnaeus, 1758	GARGANEY
<i>Anas crecca</i>	Linnaeus, 1758	COMMON TEAL
<i>Aythya ferina</i>	(Linnaeus, 1758)	COMMON POCHARD

BIRDS

<i>Aythya fuligula</i>	(Linnaeus, 1758)	TUFTED DUCK
<i>Somateria mollissima</i>	(Linnaeus, 1758)	COMMON EIDER
<i>Melanitta nigra</i>	(Linnaeus, 1758)	BLACK SCOTER
<i>Melanitta fusca</i>	(Linnaeus, 1758)	WHITE-WINGED SCOTER
<i>Bucephala clangula</i>	(Linnaeus, 1758)	COMMON GOLDENEYE
<i>Mergellus albellus</i>	(Linnaeus, 1758)	SMEW
<i>Mergus serrator</i>	Linnaeus, 1758	RED-BREASTED MERGANSER
<i>Mergus merganser</i>	Linnaeus, 1758	COMMON MERGANSER
<i>Jynx torquilla</i>	Linnaeus, 1758	EURASIAN WRYNECK
<i>Dendrocopos minor</i>	(Linnaeus, 1758)	LESSER SPOTTED WOODPECKER
<i>Dendrocopos medius</i>	(Linnaeus, 1758)	MIDDLE SPOTTED WOODPECKER
<i>Dendrocopos leucotos</i>	(Bechstein, 1803)	WHITE-BACKED WOODPECKER
<i>Dendrocopos major</i>	(Linnaeus, 1758)	GREAT SPOTTED WOODPECKER
<i>Dendrocopos syriacus</i>	(Ehrenberg, 1833)	SYRIAN WOODPECKER
<i>Picoides tridactylus</i>	(Linnaeus, 1758)	THREE-TOED WOODPECKER
<i>Dryocopus martius</i>	(Linnaeus, 1758)	BLACK WOODPECKER
<i>Picus viridis</i>	Linnaeus, 1758	EURASIAN GREEN WOODPECKER
<i>Picus canus</i>	Gmelin, 1788	GREY-FACED WOODPECKER
<i>Upupa epops</i>	Linnaeus, 1758	EURASIAN HOOPOE
<i>Coracias garrulus</i>	Linnaeus, 1758	EUROPEAN ROLLER
<i>Alcedo atthis</i>	(Linnaeus, 1758)	COMMON KINGFISHER
<i>Merops apiaster</i>	Linnaeus, 1758	EUROPEAN BEE-EATER
<i>Cuculus canorus</i>	Linnaeus, 1758	COMMON CUCKOO
<i>Apus apus</i>	(Linnaeus, 1758)	COMMON SWIFT
<i>Tyto alba</i>	(Scopoli, 1769)	BARN OWL
<i>Otus scops</i>	(Linnaeus, 1758)	COMMON SCOPS-OWL
<i>Bubo bubo</i>	(Linnaeus, 1758)	EURASIAN EAGLE-OWL
<i>Strix aluco</i>	Linnaeus, 1758	TAWNY OWL
<i>Strix nebulosa</i>	Forster, 1772	GREAT GREY OWL
<i>Glaucidium passerinum</i>	(Linnaeus, 1758)	EURASIAN PYGMY-OWL
<i>Athene noctua</i>	(Scopoli, 1769)	LITTLE OWL
<i>Aegolius funereus</i>	(Linnaeus, 1758)	BOREAL OWL
<i>Asio otus</i>	(Linnaeus, 1758)	LONG-EARED OWL
<i>Asio flammeus</i>	(Pontoppidan, 1763)	SHORT-EARED OWL
<i>Caprimulgus europaeus</i>	Linnaeus, 1758	EURASIAN NIGHTJAR
<i>Columba livia</i>	Gmelin, 1789	ROCK PIGEON
<i>Columba oenas</i>	Linnaeus, 1758	STOCK PIGEON
<i>Columba palumbus</i>	Linnaeus, 1758	COMMON WOOD-PIGEON
<i>Streptopelia turtur</i>	(Linnaeus, 1758)	EUROPEAN TURTLE-DOVE
<i>Streptopelia decaocto</i>	(Frivaldszky, 1838)	EURASIAN COLLARED-DOVE
<i>Grus grus</i>	(Linnaeus, 1758)	COMMON CRANE
<i>Rallus aquaticus</i>	(Linnaeus, 1758)	WATER RAIL
<i>Porzana parva</i>	(Scopoli, 1769)	LITTLE CRAKE
<i>Porzana pusilla</i>	(Pallas, 1776)	BAILLON'S CRAKE

BIRDS

<i>Porzana porzana</i>	(Linnaeus, 1766)	SPOTTED CRAKE
<i>Gallinula chloropus</i>	(Linnaeus, 1758)	COMMON MOORHEN
<i>Fulica atra</i>	Linnaeus, 1758	COMMON COOT
<i>Scolopax rusticola</i>	Linnaeus, 1758	EURASIAN WOODCOCK
<i>Gallinago gallinago</i>	(Linnaeus, 1758)	COMMON SNIPE
<i>Lymnocyptes minimus</i>	(Brünnich, 1764)	JACK SNIPE
<i>Limosa limosa</i>	(Linnaeus, 1758)	BLACK-TAILED GODWIT
<i>Numenius phaeopus</i>	(Linnaeus, 1758)	WHIMBREL
<i>Numenius arquata</i>	(Linnaeus, 1758)	EURASIAN CURLEW
<i>Tringa erythropus</i>	(Pallas, 1764)	SPOTTED REDSHANK
<i>Tringa totanus</i>	(Linnaeus, 1758)	COMMON REDSHANK
<i>Tringa stagnatilis</i>	(Bechstein, 1803)	MARSH SANDPIPER
<i>Tringa nebularia</i>	(Gunnerus, 1767)	COMMON GREENSHANK
<i>Tringa ochropus</i>	Linnaeus, 1758	GREEN SANDPIPER
<i>Tringa glareola</i>	Linnaeus, 1758	WOOD SANDPIPER
<i>Xenus cinereus</i>	(Güldenstädt, 1775)	TEREK SANDPIPER
<i>Actitis hypoleucos</i>	Linnaeus, 1758	COMMON SANDPIPER
<i>Arenaria interpres</i>	(Linnaeus, 1758)	RUDDY TURNSTONE
<i>Calidris alba</i>	(Pallas, 1764)	SANDERLING
<i>Calidris minuta</i>	(Leisler, 1812)	LITTLE STINT
<i>Calidris temminckii</i>	(Leisler, 1812)	TEMMINCK'S STINT
<i>Calidris maritima</i>	(Brünnich, 1764)	PURPLE SANDPIPER
<i>Calidris alpina</i>	(Linnaeus, 1758)	DUNLIN
<i>Calidris ferruginea</i>	(Vieillot, 1819)	CURLEW SANDPIPER
<i>Limicola falcinellus</i>	(Pontoppidan, 1763)	BROAD-BILLED SANDPIPER
<i>Philomachus pugnax</i>	(Linnaeus, 1758)	RUFF
<i>Burhinus oediconemus</i>	(Linnaeus, 1758)	EURASIAN THICK-KNEE
<i>Haematopus ostralegus</i>	Linnaeus, 1758	EURASIAN OYSTERCATCHER
<i>Himantopus himantopus</i>	(Linnaeus, 1758)	BLACK-WINGED STILT
<i>Recurvirostra avosetta</i>	(Linnaeus, 1758)	PIED AVOCET
<i>Pluvialis apricaria</i>	(Linnaeus, 1758)	EURASIAN GOLDEN-PLOVER
<i>Charadrius hiaticula</i>	Linnaeus, 1758	COMMON RINGED PLOVER
<i>Charadrius dubius</i>	Scopoli, 1786	LITTLE RINGED PLOVER
<i>Vanellus vanellus</i>	(Linnaeus, 1758)	NORTHERN LAPWING
<i>Larus canus</i>	Linnaeus, 1758	MEW GULL
<i>Larus argentatus</i>	Pontoppidan, 1763	HERRING GULL
<i>Larus cachinnans</i>	Pallas, 1811	YELLOW-LEGGED GULL
<i>Larus ridibundus</i>	Linnaeus, 1766	COMMON BLACK-HEADED GULL
<i>Larus melanocephalus</i>	Temminck, 1820	MEDITERRANEAN GULL
<i>Larus minutus</i>	Pallas, 1776	LITTLE GULL
<i>Rissa tridactyla</i>	(Linnaeus, 1758)	BLACK-LEGGED KITTIWAKE
<i>Sterna hirundo</i>	Linnaeus, 1758	COMMON TERN
<i>Sterna paradisaea</i>	Pontoppidan, 1763	ARCTIC TERN
<i>Sterna albifrons</i>	Pallas, 1764	LITTLE TERN
<i>Chlidonias hybrida</i>	(Pallas, 1811)	WHISKERED TERN
<i>Chlidonias leucopterus</i>	(Temminck, 1815)	WHITE-WINGED TERN

BIRDS

<i>Chlidonias niger</i>	(Linnaeus, 1758)	BLACK TERN
<i>Pandion haliaetus</i>	(Linnaeus, 1758)	OSPREY
<i>Pernis apivorus</i>	(Linnaeus, 1758)	EUROPEAN HONEY-BUZZARD
<i>Milvus migrans</i>	(Boddaert, 1783)	BLACK KITE
<i>Circaetus gallicus</i>	(Gmelin, 1788)	SHORT-TOED SNAKE-EAGLE
<i>Circus aeruginosus</i>	(Linnaeus, 1758)	WESTERN MARSH-HARRIER
<i>Circus cyaneus</i>	(Linnaeus, 1766)	NORTHERN HARRIER
<i>Circus pygargus</i>	(Linnaeus, 1758)	MONTAGU'S HARRIER
<i>Accipiter nisus</i>	(Linnaeus, 1758)	EURASIAN SPARROWHAWK
<i>Accipiter gentilis</i>	(Linnaeus, 1758)	NORTHERN GOSHAWK
<i>Buteo buteo</i>	(Linnaeus, 1758)	COMMON BUZZARD
<i>Buteo rufinus</i>	(Cretzschmar, 1827)	LONG-LEGGED BUZZARD
<i>Buteo lagopus</i>	(Pontoppidan, 1763)	ROUGH-LEGGED HAWK
<i>Aquila pomarina</i>	Brehm, 1831	LESSER SPOTTED EAGLE
<i>Aquila chrysaetos</i>	(Linnaeus, 1758)	GOLDEN EAGLE
<i>Hieraetus pennatus</i>	(Gmelin, 1788)	BOOTED EAGLE
<i>Falco tinnunculus</i>	Linnaeus, 1758	COMMON KESTREL
<i>Falco vespertinus</i>	Linnaeus, 1766	RED-FOOTED FALCON
<i>Falco columbarius</i>	Linnaeus, 1758	MERLIN
<i>Falco subbuteo</i>	Linnaeus, 1758	EURASIAN HOBBY
<i>Falco cherrug</i>	Gray, 1834	SAKER FALCON
<i>Falco peregrinus</i>	Tunstall, 1771	PEREGRINE FALCON
<i>Tachybaptus ruficollis</i>	(Pallas, 1764)	LITTLE GREBE
<i>Podiceps grisegena</i>	(Boddaert, 1783)	RED-NECKED GREBE
<i>Podiceps cristatus</i>	(Linnaeus, 1758)	GREAT CRESTED GREBE
<i>Podiceps auritus</i>	(Linnaeus, 1758)	HORNED GREBE
<i>Podiceps nigricollis</i>	Brehm, 1831	BLACK-NECKED GREBE
<i>Phalacrocorax carbo</i>	(Linnaeus, 1758)	GREAT CORMORANT
<i>Ardea cinerea</i>	Linnaeus, 1758	GREY HERON
<i>Casmerodius albus</i>	(Linnaeus, 1758)	GREAT EGRET
<i>Bubulcus ibis</i>	(Linnaeus, 1758)	CATTLE EGRET
<i>Nycticorax nycticorax</i>	(Linnaeus, 1758)	BLACK-CROWNED NIGHT-HERON
<i>Ixobrychus minutus</i>	(Linnaeus, 1766)	LITTLE BITTERN
<i>Botaurus stellaris</i>	(Linnaeus, 1758)	GREAT BITTERN
<i>Ciconia nigra</i>	(Linnaeus, 1758)	BLACK STORK
<i>Ciconia ciconia</i>	(Linnaeus, 1758)	WHITE STORK
<i>Gavia stellata</i>	(Pontoppidan, 1763)	RED-THROATED LOON
<i>Gavia arctica</i>	(Linnaeus, 1758)	ARCTIC LOON
<i>Gavia adamsii</i>	(Gray, 1859)	YELLOW-BILLED LOON
<i>Lanius collurio</i>	Linnaeus, 1758	RED-BACKED SHRIKE
<i>Lanius minor</i>	Gmelin, 1788	LESSER GREY SHRIKE
<i>Lanius excubitor</i>	Linnaeus, 1758	GREAT GREY SHRIKE
<i>Garrulus glandarius</i>	(Linnaeus, 1758)	EURASIAN JAY
<i>Perisoreus infaustus</i>	(Linnaeus, 1758)	SIBERIAN JAY
<i>Pica pica</i>	(Linnaeus, 1758)	BLACK-BILLED MAGPIE
<i>Nucifraga caryocatactes</i>	(Linnaeus, 1758)	SPOTTED NUTCRACKER

BIRDS

<i>Corvus monedula</i>	Linnaeus, 1758	EURASIAN JACKDAW
<i>Corvus frugilegus</i>	Linnaeus, 1758	ROOK
<i>Corvus corone</i>	Linnaeus, 1758	CARRION CROW
<i>Corvus corax</i>	Linnaeus, 1758	COMMON RAVEN
<i>Oriolus oriolus</i>	(Linnaeus, 1758)	EURASIAN GOLDEN-ORIOLE
<i>Bombycilla garrulus</i>	(Linnaeus, 1758)	BOHEMIAN WAXWING
<i>Cinclus cinclus</i>	(Linnaeus, 1758)	WHITE-THROATED DIPPER
<i>Turdus merula</i>	Linnaeus, 1758	EURASIAN BLACKBIRD
<i>Turdus pilaris</i>	Linnaeus, 1758	FIELDFARE
<i>Turdus iliacus</i>	Linnaeus, 1766	REDWING
<i>Turdus philomelos</i>	Brehm, 1831	SONG THRUSH
<i>Turdus viscivorus</i>	Linnaeus, 1758	MISTLE THRUSH
<i>Muscicapa striata</i>	(Pallas, 1764)	SPOTTED FLYCATCHER
<i>Ficedula hypoleuca</i>	(Pallas, 1764)	EUROPEAN PIED FLYCATCHER
<i>Ficedula albicollis</i>	(Temminck, 1815)	COLLARED FLYCATCHER
<i>Ficedula parva</i>	(Bechstein, 1792)	RED-BREASTED FLYCATCHER
<i>Erithacus rubecula</i>	(Linnaeus, 1758)	EUROPEAN ROBIN
<i>Luscinia luscinia</i>	(Linnaeus, 1758)	THRUSH NIGHTINGALE
<i>Luscinia svecica</i>	(Linnaeus, 1758)	BLUETHROAT
<i>Phoenicurus ochruros</i>	(Gmelin, 1774)	BLACK REDSTART
<i>Phoenicurus phoenicurus</i>	(Linnaeus, 1758)	COMMON REDSTART
<i>Saxicola rubetra</i>	(Linnaeus, 1758)	WHINCHAT
<i>Oenanthe oenanthe</i>	(Linnaeus, 1758)	NORTHERN WHEATEAR
<i>Sturnus vulgaris</i>	Linnaeus, 1758	COMMON STARLING
<i>Sitta europaea</i>	Linnaeus, 1758	WOOD NUTHATCH
<i>Certhia familiaris</i>	Linnaeus, 1758	EURASIAN TREE-CREEPER
<i>Certhia brachydactyla</i>	Brehm, 1820	SHORT-TOED TREE-CREEPER
<i>Troglodytes troglodytes</i>	(Linnaeus, 1758)	WINTER WREN
<i>Remiz pendulinus</i>	(Linnaeus, 1758)	EURASIAN PENDULINE-TIT
<i>Parus palustris</i>	Linnaeus, 1758	MARSH TIT
<i>Parus montanus</i>	Conrad von Baldenstein, 1827	WILLOW TIT
<i>Parus ater</i>	Linnaeus, 1758	COAL TIT
<i>Parus cristatus</i>	Linnaeus, 1758	CRESTED TIT
<i>Parus major</i>	Linnaeus, 1758	GREAT TIT
<i>Parus caeruleus</i>	Linnaeus, 1758	BLUE TIT
<i>Parus cyanus</i>	Pallas, 1770	AZURE TIT
<i>Aegithalos caudatus</i>	(Linnaeus, 1758)	LONG-TAILED TIT
<i>Riparia riparia</i>	(Linnaeus, 1758)	SAND MARTIN
<i>Hirundo rustica</i>	Linnaeus, 1758	BARN SWALLOW
<i>Delichon urbicum</i>	(Linnaeus, 1758)	NORTHERN HOUSE-MARTIN
<i>Regulus regulus</i>	(Linnaeus, 1758)	GOLDCREST
<i>Regulus ignicapilla</i>	(Temminck, 1820)	FIRECREST
<i>Locustella naevia</i>	(Boddaert, 1783)	COMMON GRASSHOPPER- WARBLER
<i>Locustella fluviatilis</i>	(Wolf, 1810)	EURASIAN RIVER WARBLER
<i>Locustella luscinioides</i>	(Savi, 1824)	SAVI'S WARBLER

BIRDS

<i>Acrocephalus schoenobaenus</i>	(Linnaeus, 1758)	SEDGE WARBLER
<i>Acrocephalus scirpaceus</i>	(Hermann, 1804)	REED WARBLER
<i>Acrocephalus dumetorum</i>	Blyth, 1849	BLYTH'S REED-WARBLER
<i>Acrocephalus palustris</i>	(Bechstein, 1798)	MARSH WARBLER
<i>Acrocephalus arundinaceus</i>	(Temminck & Schlegel, 1847)	GREAT REED-WARBLER
<i>Hippolais icterina</i>	(Vieillot, 1817)	ICTERINE WARBLER
<i>Phylloscopus trochilus</i>	(Linnaeus, 1758)	WILLOW WARBLER
<i>Phylloscopus collybita</i>	(Vieillot, 1817)	COMMON CHIFFCHAFF
<i>Phylloscopus sibilatrix</i>	(Bechstein, 1793)	WOOD WARBLER
<i>Phylloscopus trochiloides</i>	Swinhoe, 1861	GREENISH WARBLER
<i>Panurus biarmicus</i>	(Linnaeus, 1758)	BEARDED PARROTBILL
<i>Sylvia atricapilla</i>	(Linnaeus, 1758)	BLACKCAP
<i>Sylvia borin</i>	(Boddaert, 1783)	GARDEN WARBLER
<i>Sylvia communis</i>	Latham, 1787	COMMON WHITETHROAT
<i>Sylvia curruca</i>	(Linnaeus, 1758)	LESSER WHITETHROAT
<i>Sylvia nisoria</i>	(Bechstein, 1795)	BARRED WARBLER
<i>Galerida cristata</i>	(Linnaeus, 1758)	CRESTED LARK
<i>Lullula arborea</i>	(Linnaeus, 1758)	WOOD LARK
<i>Alauda arvensis</i>	Linnaeus, 1758	EURASIAN SKYLARK
<i>Eremophila alpestris</i>	(Linnaeus, 1758)	HORNED LARK
<i>Passer domesticus</i>	(Linnaeus, 1758)	HOUSE SPARROW
<i>Passer montanus</i>	(Linnaeus, 1758)	EURASIAN TREE SPARROW
<i>Motacilla alba</i>	Linnaeus, 1758	WHITE WAGTAIL
<i>Motacilla citreola</i>	Pallas, 1776	CITRINE WAGTAIL
<i>Motacilla flava</i>	Linnaeus, 1758	YELLOW WAGTAIL
<i>Anthus campestris</i>	(Linnaeus, 1758)	TAWNY PIPIT
<i>Anthus trivialis</i>	(Linnaeus, 1758)	TREE PIPIT
<i>Anthus pratensis</i>	(Linnaeus, 1758)	MEADOW PIPIT
<i>Prunella modularis</i>	(Linnaeus, 1758)	HEDGE ACCENTOR
<i>Fringilla coelebs</i>	Linnaeus, 1758	CHAFFINCH
<i>Fringilla montifringilla</i>	Linnaeus, 1758	BRAMBLING
<i>Serinus serinus</i>	(Linnaeus, 1766)	EUROPEAN SERIN
<i>Carduelis chloris</i>	(Linnaeus, 1758)	EUROPEAN GREENFINCH
<i>Carduelis spinus</i>	(Linnaeus, 1758)	EURASIAN SISKIN
<i>Carduelis carduelis</i>	(Linnaeus, 1758)	EUROPEAN GOLDFINCH
<i>Carduelis cannabina</i>	(Linnaeus, 1758)	EURASIAN LINNET
<i>Carpodacus erythrinus</i>	(Pallas, 1770)	COMMON ROSEFINCH
<i>Loxia pytyopsittacus</i>	Borkhausen, 1793	PARROT CROSSBILL
<i>Loxia curvirostra</i>	Linnaeus, 1758	RED CROSSBILL
<i>Pyrrhula pyrrhula</i>	(Linnaeus, 1758)	EURASIAN BULLFINCH
<i>Coccothraustes coccothraustes</i>	(Linnaeus, 1758)	HAWFINCH
<i>Emberiza citrinella</i>	Linnaeus, 1758	YELLOWHAMMER
<i>Emberiza hortulana</i>	Linnaeus, 1758	ORTOLAN BUNTING
<i>Emberiza schoeniclus</i>	(Linnaeus, 1758)	REED BUNTING

BIRDS

<i>Miliaria calandra</i>	Linnaeus, 1758	CORN BUNTING
<i>Calcarius lapponicus</i>	(Linnaeus, 1758)	LAPLAND LONGSPUR
<i>Plectrophenax nivalis</i>	(Linnaeus, 1758)	SNOW BUNTING
<i>Loxia leucoptera</i>	Gmelin, 1789	WHITE-WINGED CROSSBILL
<i>Carduelis flammea</i>	(Linnaeus, 1758)	COMMON REDPOLL
<i>Strix uralensis</i>	Pallas, 1771	URAL OWL

BIVALVES, CEPHALOPODS, GASTROPODS, LEECHES

<i>Pseudanodonta complanata</i>	Rossmössler, 1835	
<i>Unio crassus</i>	Philipsson, 1788	
<i>Eudontomyzon mariae</i>	(Berg, 1931)	UKRANIAN BROOK LAMPREY
<i>Cochlicopa nitens</i>	Gallenstein, 1848	
<i>Fagotia esperi</i>	(Ferussac, 1823)	
<i>Myxas glutinosa</i>	(Müller, 1774)	GLUTINOUS SNAIL
<i>Vertigo angustior</i>	Jeffreys, 1830	NARROW-MOUTHED WHORL SNAIL
<i>Vertigo moulinsiana</i>	Dupuy, 1849	DES MOULIN'S SNAIL
<i>Hirudo medicinalis</i>	Linnaeus, 1758	MEDICINAL LEECH

INSECTS

<i>Buprestis splendens</i>	(Fabricius, 1775)	GOLDSTREIFIGER
<i>Carabus intricatus</i>	Linnaeus, 1761	BLUE GROUND BEETLE
<i>Cerambyx cerdo</i>	Linnaeus, 1758	CERAMBYX LONGICORN
<i>Cucujus cinnaberinus</i>	(Scopoli, 1763)	
<i>Dytiscus latissimus</i>	Blunck, 1923	
<i>Formica aquilonia</i>	Yarrow, 1955	
<i>Formica rufa</i>	Linnaeus, 1761	RED WOOD ANT
<i>Formica uralensis</i>	Ruzsky, 1895	
<i>Leucorrhinia albifrons</i>	(Burmeister, 1839)	
<i>Leucorrhinia caudalis</i>	(Charpentier, 1840)	
<i>Lycaena dispar</i>	(Haworth, 1802)	LARGE COPPER
<i>Maculinea alcon</i>	(Denis & Schiffermüller, 1775)	ALCON LARGE BLUE
<i>Maculinea arion</i>	(Linnaeus, 1758)	LARGE BLUE
<i>Maculinea nausithous</i>	(Bergstrasser, 1779)	DUSKY LARGE BLUE
<i>Ophiogomphus cecilia</i>	(Fourcroy, 1785)	GRUNE KEILJUNGTER
<i>Osmoderma eremita</i>	(Scopoli, 1763)	HERMIT BEETLE
<i>Phyllodesma ilicifolia</i>	(Linnaeus, 1758)	SMALL LAPPET MOTH
<i>Rosalia alpina</i>	(Linnaeus, 1758)	ROSALIA LONGICORN
<i>Nehalennia speciosa</i>	(Charpentier, 1840)	
<i>Aeshna crenata</i>	Hagen, 1856	

MAMMALS

<i>Apodemus agrarius</i>	(Pallas, 1771)	STRIPED FIELD MOUSE
<i>Apodemus flavicollis</i>	(Melchior, 1834)	YELLOW-NECKED FIELD MOUSE
<i>Apodemus sylvaticus</i>	(Linnaeus, 1758)	LONG-TAILED FIELD MOUSE
<i>Apodemus uralensis</i>	(Pallas, 1811)	URAL FIELD MOUSE
<i>Arvicola terrestris</i>	(Linnaeus, 1758)	EUROPEAN WATER VOLE
<i>Barbastella barbastellus</i>	(Schreber, 1774)	WESTERN BARBASTELLE
<i>Bison bonasus</i>	(Linnaeus, 1758)	EUROPEAN BISON
<i>Canis lupus</i>	Linnaeus, 1758	ARCTIC WOLF
<i>Castor fiber</i>	Linnaeus, 1758	EURASIAN BEAVER
<i>Clethrionomys glareolus</i>	(Schreber, 1780)	BANK VOLE
<i>Desmana moschata</i>	(Linnaeus, 1758)	RUSSIAN DESMAN
<i>Dryomys nitedula</i>	(Pallas, 1778)	FOREST DORMOUSE
<i>Felis silvestris</i>	Schreber, 1775	WILD CAT
<i>Lepus timidus</i>	Linnaeus, 1758	ARCTIC HARE
<i>Lutra lutra</i>	(Linnaeus, 1758)	COMMON OTTER
<i>Lynx lynx</i>	(Linnaeus, 1758)	EURASIAN LYNX
<i>Marmota bobak</i>	(Müller, 1776)	BOBAK MARMOT
<i>Micromys minutus</i>	(Pallas, 1771)	EURASIAN HARVEST MOUSE
<i>Microtus agrestis</i>	(Linnaeus, 1761)	FIELD VOLE
<i>Microtus oeconomus</i>	(Pallas, 1776)	ROOT VOLE
<i>Microtus arvalis</i>	(Pallas, 1778)	COMMON VOLE
<i>Muscardinus avellanarius</i>	(Linnaeus, 1758)	COMMON DORMOUSE
<i>Mustela lutreola</i>	(Linnaeus, 1761)	EUROPEAN MINK
<i>Mustela nivalis</i>	Linnaeus, 1766	LEAST WEASEL
<i>Myotis bechsteini</i>	(Kuhl, 1817)	BECHSTEIN'S BAT
<i>Myotis dasycneme</i>	(Boie, 1825)	POND BAT
<i>Myotis myotis</i>	(Borkhausen, 1797)	GREATER MOUSE-EARED BAT
<i>Myotis nattereri</i>	(Kuhl, 1817)	NATTERER'S BAT
<i>Nyctalus lasiopterus</i>	(Schreber, 1780)	GIANT NOCTULE
<i>Nyctalus leisleri</i>	(Kuhl, 1817)	LESSER NOCTULE
<i>Pteromys volans</i>	(Linnaeus, 1758)	RUSSIAN FLYING SQUIRREL
<i>Crocidura suaveolens</i>	(Pallas, 1811)	LESSER SHREW
<i>Neomys fodiens</i>	(Pennant, 1771)	EURASIAN WATER SHREW
<i>Sorex caecutiens</i>	Laxmann, 1788	LAXMANN'S SHREW
<i>Sorex minutus</i>	Linnaeus, 1766	EURASIAN PYGMY SHREW
<i>Martes foina</i>	(Erxleben, 1777)	BEECH MARTEN
<i>Meles meles</i>	(Linnaeus, 1758)	BADGER
<i>Mustela erminea</i>	Linnaeus, 1758	ERMINE
<i>Mustela eversmannii</i>	Lesson, 1827	STEPPE POLECAT
<i>Glis glis</i>	(Linnaeus, 1766)	FAT DORMOUSE
<i>Erinaceus concolor</i>	Martin, 1838	EASTERN EUROPEAN HEDGEHOG
<i>Lepus europaeus</i>	Pallas, 1778	BROWN HARE
<i>Lepus europaeus</i>	Pallas, 1778	EUROPEAN HARE
<i>Mustela putorius</i>	Linnaeus, 1758	EUROPEAN POLECAT

MAMMALS

<i>Ursus arctos</i>	Linnaeus, 1758	BROWN BEAR
<i>Equus ferus</i>	Boddaert, 1785	HORSE
<i>Sus scrofa</i>	Linnaeus, 1758	WILD BOAR
<i>Alces alces</i>	(Linnaeus, 1758)	EUROPEAN ELK
<i>Cervus elaphus</i>	Linnaeus, 1758	ELK

REPTILES

<i>Emys orbicularis</i>	(Linnaeus, 1758)	EUROPEAN POND TURTLE
<i>Natrix natrix</i>	(Linnaeus, 1758)	GRASS SNAKE

ANNEX E. PERSONS INTERVIEWED

Alexy Artushevsky	Ministry of Natural Resources and Environmental Protection; UNDP/GEF Project Manager and Natural Resources
Victor Fenchuk	APB (Birdlife International Belarus) Scientist
Vladimir Homets	Ministry of Forestry; Head of Estimation and Utilization Forest Fund
Chuck Howell	USAID/Minsk Country Representative
Alexander Kazulin	APB (Birdlife International Belarus) Scientist
Valeria Klitsounova	Chairperson, Belarusian Association Country Escape (Ecotourism NGO)
Nikalai Kryk	Ministry of Forestry, First Deputy Minister
Alexander Levchenko	Coordinator, UNDP/GEF Small Grants Program
Elena Laevskaya	EcoPravo, Environmental Attorney
Mikalai Mixalchuk	National Academy of Science, Brest Agriculture and Ecological Department
Valery Pabiruska	Ministry of Forestry, Head of Science, Law, and Personnel
Vadim Prokopchuk	APB (Birdlife International Belarus), Scientist, Brest local government.
Alexander Rachevsky	Ministry of Natural Resources and Environmental Protection, Head of International Cooperation Department
Ludmilla Sokolovskaya	CNFA Country Manager.
Alexandre Vintchevski	APB (Birdlife International Belarus)

Others:

Scientist from Belaverskaya Puscha National Park

Officials from Ministry of Natural Resources and Environmental Protection.

Local officials from Brest Oblast Department of Environmental Protection.

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ANNEX F. REFERENCES

References:

Kozulin, A.V. et al. 2005. *Treasures of Belarusian Nature. Areas of International Importance for the Conservation of Biodiversity*. Minsk, Belarus.

Ministry of Forestry of Belarus. 2006. *Forests and Forestry of the Republic of Belarus*. Minsk, Belarus.

Ministry of Natural Resources and Environmental Protection and National Academy of Sciences of the Republic of Belarus and United Nations Environmental Program. 1998. *First National Report on the Implementation on the Convention of Biodiversity*. Minsk, Belarus.

Ministry of Natural Resources and Environmental Protection and National Academy of Sciences of the Republic of Belarus. 2004. *Red Book of the Republic of Belarus: Animals*. Minsk, Belarus.

Ministry of Natural Resources and Environmental Protection and National Academy of Sciences of the Republic of Belarus. 2005. *Red Book of the Republic of Belarus: Plants*. Minsk, Belarus.

Ministry of Natural Resources and Environmental Protection of the Republic of Belarus, the Global Environmental Facility, and the United Nations Environmental Program. 2003. *Biological Diversity of Belarusian Bog Mires*. Minsk, Belarus.

Republic of Belarus. 2004. *National Sustainable Socio-Economic Development Strategy of Belarus for the period to 2020*. Minsk, Belarus.

United Nations Economic Commission for Europe (UNECE). 2005. *Second Environmental Performance Review*. New York, USA and Geneva, Switzerland.

USAID. *Biodiversity Conservation: A Guide for USAID Staff and Partners*. 2005.

Warner, R., A. Borok, D. Gibson, V. Petukhov. *USAID Biodiversity Assessment for Belarus*. 2001.

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ANNEX G. SCOPE OF WORK

TITLE: BIODIVERSITY ASSESSMENT

A.1 OBJECTIVES

The purpose of this task is to conduct an update of country biodiversity analyses for Ukraine, Moldova and Belarus which were completed in the Fall of 2001. These analyses will respond to requirements of Section 119(d) of the Foreign Assistance Act of 1961 (as amended (FAA)) and ADS 201.3.8.2 regarding biodiversity analyses for country strategic plans. The assessments are intended to assist the Regional Mission for Ukraine, Moldova and Belarus during the upcoming strategic planning process by identifying necessary actions in each country to conserve biodiversity. Upon completion of the analyses, the Mission will submit these reports to the Bureau's Environmental Officer for final approval.

These country specific analyses will also serve as a planning tool to assist USAID to identify stand alone and/or cross-cutting opportunities to promote sustainable, environmentally-sound employment, trade, investment and income interventions while integrating environment concerns into its overall programs.

A.2 STATEMENT OF WORK

To prepare the biodiversity analyses for Ukraine, Moldova, and Belarus, the Contractor will carry out the following tasks:

Pre Departure:

1. Gather and get acquainted with already existing background information about Ukraine, Moldova, and Belarus, such as each country's natural resources, geographical, ecological and biological specificities, current status of biodiversity, institutional organization on entity and state level responsible for biodiversity, key stakeholders and donors in environment and biodiversity, legislation related to biodiversity, and other relevant information required for the each country analysis. The Contractor should also review the biodiversity assessments conducted in 2001 for important baseline information to be referenced as appropriate. The Contractor will also be familiar with past USAID Programmatic Environmental Assessments and key environmental assessments when available as prepared by donors (i.e., EU, UNDP, WB, and GEF).
2. Convene meetings with the Europe and Eurasia Bureau's Environmental Officer (BEO) in Washington, the E&E Desk Officer, representatives from "pillar" bureaus such as EGAT, DCHA and Global Health, and others suggested by the BEO and Desk Officer to ensure full understanding of E&E program in Ukraine, Belarus and Moldova, USAID environmental procedures and purpose of this assignment.
3. The Contractor will also include meetings with relevant USG and World Bank officials and with appropriate international NGOs to obtain current information on relevant studies, projects and initiatives.

Field activities:

4. For each country, the Contractor will hold mandatory meetings with all key Mission personal including Program Office staff and sector experts. For Moldova and Belarus these meetings may be held in the Regional Mission in Kiev or potentially in the Country Offices. During the meetings with the USAID Mission, the Contractor will obtain detailed information about the programs, objectives, and goals under the Mission strategic plan. The Contractor will be briefed about other stakeholders, USAID partners, local government agencies and their hierarchy, and other key players of interest for the assessment. The Contractor and USAID Mission will discuss the planned activities required for each analysis well as the approach that the Contractor will take during the performance.

5. For each country, the Contractor will hold meetings with the relevant local government institutions, agencies and Ministries. The Contractor will gather information, recommendations and experiences about past and planned activities from the local officials and persons directly involved in biodiversity issues. The Contractor will gather detailed information about the country's specificities, such as protected areas and endangered plants and species.

6. For each country, the Contractor will hold meetings with other international donors, agencies and NGOs involved in environmental programs in order to be well informed about ongoing and planned activities by other donors and agencies.

7. For each country, the Contractor will, in coordination with USAID, plan and conduct several (the exact number to be determined at a later date and in coordination with USAID) site visits to the areas of the special interest for biodiversity assessment and priority conservation to supplement understanding of interviews and literature.

A.3 DELIVERABLES

1. The Contractor will produce a separate report for each country, which satisfies the mandatory FAA 119 reporting requirements regarding the actions necessary to conserve biodiversity and the extent to which USAID Strategic Process should address those needs. Specifically, the deliverables are as follows:

- A. Schedule submitted to USAID within five working days of start date.
- B. Oral debriefing to Mission Staff prior to departure (Team Leader and Sr. Specialist).
- C. Three separate Country Specific FAA Section 119 Biodiversity Analysis reports containing the information described in Section A.3.2 below.

Report Review and Approval Process:

- i. Draft reports submitted for Mission review/comment in electronic form (saved in MS Word format) at the time of the exit briefing with Mission Director. Mission will have five business days to provide comments.
 - ii. Second Draft with Mission comments incorporated submitted to the BEO for review/comment within two weeks of receipt of Mission comments. BEO will provide comments on the reports within two weeks.
 - iii. Final Report with all comments incorporated submitted to the Mission within two weeks of receipt of comments from the BEO.
- D. A brief (10-15 p.) Strategy Process Environmental Annex, which consists of a combined summary and syntheses of the findings and recommendations of the three analyses. The introduction to the Summary will include the following statement:

"The Environmental Annex is an SP-specific analysis that examines environmental threats and opportunities inherent to the Mission's strategy and assesses the extent to which the Mission's strategy incorporates or addresses biodiversity concerns. This assessment does not substitute for the Initial Environmental Examination (IEE). Each Technical Office is responsible for ensuring that an IEE or a Request for a Categorical Exclusion is conducted at the SO level for all activities funded by USAID."

- E. Ten bound copies of each country Final FAA 119 Analysis and the Strategy Process Environmental Annex will be delivered within two weeks of final approval by the Mission.

2. Each country specific report should include but not be limited to:

- A. Introduction and general overview of information available, sources, meetings held, site visits, and possible information gaps on the status of biological diversity.

- B. Update of changes since the 2001 report of the strategic and policy framework of the Government in the environment sector and structure and inter-relations of the institutions related to the biodiversity. This should include institutions at the state, as well as at the oblast, and local levels where appropriate and available and the specific area of their interest; funding of the projects related to the biodiversity; past and planned activities; the interest and commitment of the government to the protection of its resources; national strategies related to the protection and management of biological resources.
- C. Overview of key environmental NGOs and their projects for the conservation of biodiversity. This will include description of their specific interest in biodiversity; past, ongoing and planned activities related to biodiversity; and level of funding for each of the activities identified.
- D. Description of other relevant donor activities, levels of funding, planned activities, relation to USAID projects and programs.
- E. Update of changes since the 2001 report with respect to the analysis of current legislation related to the environment and biodiversity. This section should include identification of laws related to the protection and management of biological resources and endangered species. This section should also give a review of the international treaties signed and ratified, as well as those that need to be signed and ratified in the near future in order to conserve and manage its biological resources more efficiently.
- F. Management, conservation and condition of the areas with special status (protected areas); should also include an updated list or maps (if available) of all protected national parks, forest resources, animal sanctuaries, wildlife refuges and other protected areas as well as a brief description of each of the protected areas with highlighted specificities. The section should also identify potential protected areas in the country. This section should identify the institutions or agencies that are responsible for managing the protected areas (government or non-government) and their effectiveness. This section should provide guidelines for more effective management and usage of the protected areas for economic purposes, such as eco-tourism.
- G. The section dedicated to protection of the endangered species should include an updated list of all IUCN classified endangered and rare species found in the country. The section should provide a map (if available) identifying their habitats. The section should analyze the protective measures and potential threats and pressures on the habitats. The section should analyze the effectiveness of the protective measures and legislation related to this issue.
- H. Status of natural ecosystems should be updated in a section, with descriptions of the major ecosystems in the country. The review and analyses of their present management and conservation should be given in this section. The section should highlight the unique aspects of the country's biodiversity, including specific and endemic plants and animal species. The section should analyze changes to the status of each major ecosystem since the 2001 report.
- I. Current and potential threats to biodiversity whether they are related to human acts, ecological causes, natural diseases, lack of legislation or protection or any other causes. Within this section a particular sub-section should be devoted to urgent problems being faced by each country such as:
- Deforestation/unsustainable forestry/illegal logging
 - River/Water pollution
 - Erosion of land
 - Land utilization

- J. Description of the major issues, needs, and recommendations for the effective conservation of biological diversity in the country. This section should include a summary of all the major issues identified during the analysis that require immediate attention in order to improve the protection of biodiversity. The needs assessment should cover all areas including institutional and legislative weaknesses to issues related to the management of biodiversity, protected areas and related natural resources. The recommendations should include brief descriptions of objectives and outcomes/benefits for the country's biodiversity.

- K. An assessment of the Extent to which USAID's Strategic Process meets the needs identified (FAA Sec. 119 d (2)). This section will review Mission strategic objectives and proposed activities (where appropriate) and identify any current and potential linkages with biodiversity conservation. The law does not require, and the Mission has no current plans to make substantial investments in Biodiversity protection; therefore, findings and recommendations will need to consider linkages and opportunities which are consistent and supportive of the Missions' Strategic Objectives. This particular aspect of the analysis will require significant interaction with Mission staff.

ANNEX H. BELARUS ENVIRONMENT RELATED INTERNET RESOURCES

Ministries and government institutions:

Ministry of Justice of the Republic of Belarus	http://ncpi.gov.by/minjust/struct/ua.htm
Ministry of Foreign Affairs	http://www.mfa.gov.by/eng/index.php
President of Belarus	http://www.president.gov.by/eng/
Ministry of Justice	http://ncpi.gov.by/minjust/
Ministry of Agriculture and Food	http://mshp.minsk.by/mcx_e.htm
Ministry of Natural Resources and Environmental Protection	http://www.minpriroda.by/
National Center of Legal Information	http://ncpi.gov.by/eng/index.htm
National Center of Legal Information (Russian)	http://ncpi.gov.by/
National legal internet portal	http://www.law.by/

Other Internet sites:

APB Bird Life Belarus NGO	http://apb.iatp.by/about.html
Atlapeia	http://www.atlapeia.com/online/countries/belarus.htm
Belarus guide. Law and politics in Belarus	http://www.belarusguide.com/as/law_pol/law_pol.html
Belarus Popular Front	http://pages.prodigy.net/dr_fission/bpf/
Belarus Travel and Tourism	http://www.geocities.com/albaruthenia/IA/travel.html
CIS Stat.	http://www.cisstat.com/eng/bel.htm
EBRD Strategy	http://www.ebrd.com/about/strategy/country/belarus/strategy.pdf
EEA. SoE Belarus	http://countries.eea.eu.int/SERIS/SoEReports/view_on_coverage?country=by
EIA	http://www.eia.doe.gov/emeu/world/country/cntry_BO.html
Encarta	http://encarta.msn.com/encyclopedia_761553191/Belarus.html
NTRI Environmental treaties and resource indicators	http://sedac.ciesin.columbia.edu/entri/index.jsp
EU. External Relations - Belarus	http://europa.eu.int/comm/external_relations/belarus/intro/index.htm
IMF and Belarus	http://www.imf.org/external/country/blr/index.htm
NATO Country info	http://www.nato.int/ccms/general/countrydb/belarus.html
OECD Development Assistance Committee	http://www.oecd.org/dac
OECD Environment Directorate, EAP Task Force	http://www.oecd.org/env/eap
UN and Chernobyl	http://www.un.org/ha/chernobyl/
UN Cartographic / Map of Belarus	http://www.un.org/Depts/Cartographic/map/profile/belarus.pdf
UN DESA Sustainable Development	http://www.un.org/esa/sustdev/natlinfo/nsds/nsds.htm
UN DESA Sus. Dev. – Belarus	http://www.un.org/esa/agenda21/natlinfo/countr/belarus/index.htm
UNDP HDI for Belarus	http://hdr.undp.org/reports/global/2002/en/indicator/cty_f_BLR.html
UNDP Human Development Reports	http://www.undp.org/rbec/events/news/hdr2001.htm
UNDP National Human Development Report 2003	http://hdr.undp.org/reports/view_reports.cfm?country=BYE&countryname=BELARUS%20
UNECE Trends	http://www.unece.org/stats/trend/blr.pdf
UNECE WG on Environmental and Assessment	http://unece.unog.ch/enhs/wgema/SrcList1.asp
USAID	http://www.usaid.gov/locations/europe_eurasia/countries/by/
Wikipedia	http://en.wikipedia.org/wiki/Belarus
World Bank	http://lnweb18.worldbank.org/eca/belarus.nsf

Adapted from UNECE Second Environmental Performance Review, 2005