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BIODIVERSITY ANALYSIS UPDATE FOR GEORGIA

FINAL REPORT – VOLUME I OF II

Prosperity, Livelihoods and Conserving Ecosystems (PLACE) IQC Task Order #7

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PROSPERITY, LIVELIHOODS AND CONSERVING ECOSYSTEMS (PLACE) IQC TASK ORDER #7

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EXECUTIVE SUMMARY

This Biodiversity Analysis for Georgia was conducted to fulfill United States Foreign Assistance Act (FAA) 22 CFR 216 Section 119 and is intended to serve as a useful tool for biodiversity conservation planning and activities by the United States Agency for International Development (USAID) and other entities engaged in relevant work in Georgia. Although considered an "update" to the original Biodiversity Analysis for Georgia, published in 2000, and updated in 2003, due to the long gap since the original full report was produced this document is designed to stand alone. A second document with USAID-only recommendations has also been simultaneously prepared and submitted.

Information contained in this report was acquired through literature searches, document collection, interviews with key personnel in related organizations, and through a series of trips to the field by a two person team of senior development professions, Pat Foster-Turley (Team Leader and Biodiversity Specialist) and Ramaz Gokhelashivili (Natural Resource Management Specialist) under contract with ECODIT, Inc.

The country of Georgia encompasses an area about the size of North Carolina in the United States, but contains a remarkable diversity of ecosystems, climate zones, and natural features including two mountain ranges with peaks more than 15,000 feet high, alpine meadows, fertile lowland valleys, wetlands, rivers, and a coastline along the Black Sea. This geographical diversity has led to a concomitant diversity of animal and plant species. Many of the species found in Georgia are endemics, only found here and/or in neighboring areas in Russia, Azerbaijan, Turkey and Armenia. Georgia is also the last large refuge for a number of globally recognized rare and endangered species. Due to the diversity of species and ecosystems in Georgia and neighboring countries, internationally the Caucasus Ecoregion is considered a global hotspot for biodiversity by Conservation International, the Worldwide Fund for Nature and other conservation groups and donors collaborating in the Critical Ecosystem Partnership Fund. Georgia is also widely considered to be the origin of many important agricultural species, especially grains and fruits, and is still an important resource of agrobiodiversity, although this global asset is rapidly being eroded. Georgia's natural resources and biodiversity also have large economic potential in ecotourism development, harvest value of plants and animals and in the ecosystem services these features provide to Georgian people and the world.

Georgia's tumultuous history in recent years has impacted its biodiversity. Under Soviet control, Georgia's protected areas were given the strictest levels of protection, and few people were allowed to enter the forests. As a result much of its biodiversity in these areas was preserved. With independence and the loss of Soviet markets for Georgia's agricultural products, poverty pushed more Georgians into natural resource extraction. Environmental policies and laws were also weakened considerably by the Government of Georgia in order to fuel economic development. Now the Ministry of Environment is being further weakened, and there is a lack of political will to fuel effective environmental protection and biodiversity conservation. Although Georgia is a party to most major biodiversity related treaties, implementation of treaty requirements is largely lacking.

Despite these problems, with donor and non-governmental organizations (NGOs) help, Georgia has been expanding its system of protected areas, an important reserve for the country's biodiversity. Presently about 7% of Georgia's land is protected, and, with the addition of new planned areas, it may reach more than 10% in the next few years. Outside of protected areas, however, biodiversity is rarely a governmental consideration. Most people at all levels in Georgia are unaware of the value of its biodiversity and of the need to conserve it.

Root Causes: In the process of this analysis, and building on the work of other regional and international biodiversity specialists, it has been determined that the threats to Georgia's biodiversity largely stem from four root causes. These causes A through D are listed below, with related recommendations from this report following them:

A. Reliance of poverty-stricken Georgians on the often unsustainable use of biodiversity to support their families;
   - More community-based programs are needed around Protected Areas (PAs) and in fragile landscapes to develop the economic potential of PAs and provide the rural poor with more income-making opportunities and more efficient energy strategies.

B. Lack of political will to promote and support biodiversity and natural resources conservation;
   - A new National Biodiversity Strategy and Action Plan (NBSAP) needs to be developed and approved by the Government of Georgia and used in policy making and on the ground activities.
   - Red List legislation in Georgia needs to be improved to address the following issues: listing and de-listing aspects, necessity of development, approval and implementation of species action plans for listed species.
   - The Environmental Impact Assessment (EIA) process in Georgia needs an overhaul and implementation needs to be strengthened and enforced.

C. Lack of good data to effectively manage natural resources and biodiversity; and
   - A National Biodiversity Monitoring and Information Management System needs to be established and utilized to manage species, ecosystems and genetic resources.
   - Gap analysis of protected areas needs to be conducted by the government in association with NGOs, universities and other specialists to ensure effective coverage and management for biodiversity.

D. Lack of public awareness and understanding of the value of biodiversity and the benefits of conserving natural resources.
   - Public awareness and formal and non-formal education programs are needed to boost environmental concern among Georgians at all levels.

Direct Threats: Although the root causes listed above in some way relate to most of the biodiversity concerns in Georgia, a number of direct threats have been singled out for focused attention. These are listed in order of priority as determined by this Biodiversity Assessment team, and a few suggested activities to address these are given as well.

1. Poaching and the illegal wildlife trade
   - Wildlife regulations need strengthening and stricter enforcement.
2. Pollution of rivers, wetlands and the Black Sea
   - Water quality standards in Georgia need strengthening and enforcement of infractions.
3. Illegal logging, fuel wood harvesting and the timber trade
   - More information is needed to effectively allocate and manage logging concessions in Georgia and to find affordable replacement fuels for local populations.
4. Over-fishing
   - Aquatic biodiversity and fisheries issues and aquatic ecosystems in general need more attention in Georgia in order to be more effectively managed.

5. Exotic species
    - The extent and distribution of exotic species, particularly fish, need to be determined and efforts put in place to restore native fish populations.
6. Overgrazing
    - Efforts need to be made to provide alternative fodder for domestic sheep and goats that are regularly herded through fragile landscapes and protected areas where they directly compete with threatened ungulate species.
7. Infrastructure development
    - Attention needs to be paid to aquatic biodiversity issues involving hydroelectric schemes, draining of wetlands and other human engineering programs in natural aquatic habitats.
8. Changing agricultural practices
    - Agrobiodiversity needs to be a focus of conservation efforts.

Further details on the topics and recommendations referred to in this Executive Summary are provided in the text that follows. It is hoped that this report will help those who are working to conserve the magnificent natural resources and biodiversity of the gem of land called Georgia.

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Acronyms

Although an effort was made to reduce the number of acronyms used in this text, in some cases this was necessary. Whenever the acronym or abbreviation appears the first time it is defined in the text. The following list is provided for ease of the readers of this document.

AEWA	Agreement on the Conservation of African-Eurasian Migratory Water birds
AO	Assistance Objective
APA	Agency of Protected Areas
BSAP	Biodiversity Strategy and Action Plan
CAS	Country Assistance Strategy
CBO	Community Based Organization
CENN	Caucasus Environmental NGO Network
CEPF	Critical Ecosystems Partnership Fund
CMS	Convention on Migratory Species
CI	Conservation International
DPA	State Department of Protected Areas
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EU	European Union
FAA	Foreign Assistance Act
GBA	Georgia Biodiversity Analysis
GBIO	Georgia Biodiversity Integration Opportunities
GCC	Global Climate Change
GCCW	Georgian Center for the Conservation of Wildlife
GEF	Global Environmental Facility
GIS	Geographic Information System
GoG	Government of Georgia
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
IBA	Important Bird Area
ICARDA	International Center for Agricultural Research in Dry Areas
ICZM	Integrated Coastal Zone Management
IWNRM	Sustained Integrated Watershed and Natural Resource Management

IR	Intermediate Result
IUCN	International Union for Conservation of Nature
KfW	German Bank for Reconstruction and Development
LEPL	Legal Entity of Public Law
MoE	Ministry of Environment Protection and Natural Resources of Georgia
NACRES	Noah's Ark Center for the Recovery of Endangered Species
NBSAP	National Biodiversity Strategy and Action Plan
NEAP	National Environmental Action Program
NGO	Non Governmental Organization
OSCE	Organization for Security and Co-operation in Europe
PA	Protected Area
SDF	State Department of Forestry
SDC	Swiss Agency for Development and Cooperation
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
USAID	US Agency for International Development
WB	The World Bank
WRI	World Resources Institute
WWF	Worldwide Fund for Nature

1.0 INTRODUCTION

This Biodiversity Analysis of Georgia is the third in a series beginning in 1999, when the first analysis was conducted here for USAID. An update on the original analysis was published in 2003. It has been a decade since the first full report was produced and although this is considered an update, it is comprehensive and can stand alone. The report was prepared for USAID/Caucasus under Prosperity, Livelihoods and Conserving Ecosystems (PLACE) Indefinite Quantity Contract, number EPP-I-07-06-00010-00, Task Order #07 awarded 28 September 2009 to ECODIT Inc.

USAID/Georgia is now developing new Country Assistance Objectives (AOs) for FY 2010 to FY 2012 in response to the changes in Georgia following the August 2008 war with Russia. This Biodiversity Analysis Update is prepared to address the requirements of the U.S. Government's Foreign Assistance Act (FAA) section 22 CFR 216 in conjunction with the development of these Assistance Objectives. This assessment addresses 22 CFR 216 Section 119- Biodiversity, which specifies that "Each country development strategy statement or other country plan prepared by USAID 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 USAID meet the needs thus identified."

Volume I of this report details the status and threats to biodiversity in Georgia, including biological, social and economic aspects and is designed for audiences ranging from NGOs, donors, and individuals involved in biodiversity conservation in Georgia. An effort was made to interview and include the views and concerns of as many governmental, NGO, and academic professionals as possible that are involved in aspects of biodiversity conservation and management in Georgia. Volume II, the Georgia Biodiversity Integration Opportunities (GBIO) report, was prepared in parallel, is designed for a USAID audience only and addresses "the extent to which the actions proposed for support by the Agency meet the needs thus identified" in Volume I. The results of this report inclusive of both Volumes I and II are intended to guide USAID/Georgia in programmatic decision making and to serve as a planning tool to identify opportunities that ensure that biodiversity is considered in relevant programmatic areas as they embark on the efforts outlined in the Country Assistance Strategy (CAS) and implement and design activities.

This 2009 Biodiversity Assessment was accomplished by an ECODIT Inc. team of two senior international development professionals, Pat Foster-Turley (Biodiversity Specialist/USA) and Ramaz Gokhelashivili (Natural Resource Management Specialist /Georgia). The assessment methodology included meetings and interviews with a variety of development professionals in Washington D.C. and many specialists in Tbilisi to gather viewpoints and key documents followed by a series of site visits to get a firsthand look at a few key protected areas and some of the biodiversity issues. Along the way, on visits to Lagodekhi Protected Area in eastern Georgia, Mtirala and Kolkheti National Parks in western Georgia, and Kazbegi National Reserve to the north, additional efforts were made to interview people in the field impacted by biodiversity, parks and conservation efforts.

2.0 STATUS OF BIODIVERSITY IN GEORGIA

2.1 Overview

The country of Georgia is only slightly larger than the United States' state of North Carolina, encompassing 69,000 square kilometers, but in biodiversity, it rivals some of the largest and most varied countries in the world. Although Georgia has a temperate climate, its biodiversity is comparable to that of many tropical countries known for species richness. The human population of the country is largely rural, aside from Tbilisi, the capital and other smaller urban centers. It is said that nearly 40% of the land area of Georgia is still covered with forests, although it is difficult to confirm the source of this number, which is widely used today.

Much of the landscape is still covered in natural, although sometimes degraded, habitats that range from coastal areas at zero elevation all the way up to the highest mountains in the Greater Caucasus Mountain range, towering more than 5000 meters (16,000 feet) high. With these altitudinal changes, come a variety of different ecosystems, but Georgian biodiversity is enhanced by its geographic location and variable climate as well. Georgia is located on an isthmus between the Caspian and Black seas, an area that forms the juncture to two zoogeographic regions—the Euro-Siberian and Irano-Turanian, and also serves as an important bird migration route. This unique geographic, climatic and altitudinal mix has led to an extraordinary diversity of ecosystems and species in a relatively small area.

Georgia's biodiversity importance is internationally recognized, as part of the "Caucasus Ecoregion", an area that is included as one the 25 most endangered and diverse ecosystems on Earth, in global biodiversity assessments conducted collaboratively by major international conservation groups during the past decade. An Ecoregional Conservation Plan for the Caucasus, coordinated by World Wildlife Fund (WWF), in association with other international NGOs and foundations was published in 2006 and now is being used to guide biodiversity conservation efforts in this area. A related initiative, the Critical Ecosystem Partnership Fund (CEPF), a joint initiative of Conservation International (CI), the Global Environment Facility (GEF), the Government of Japan, the MacArthur Foundation and the World Bank (WB), is providing programmatic support for biodiversity activities in this region.

Much of the recent work done to examine the status, extent and threats to biodiversity encompass the entire Caucasus Ecoregion, including Georgia, Armenia, Azerbaijan and adjacent areas of Russia, Turkey and Iran. This report will try to focus primarily on those habitats and species only found in Georgia, but in some cases the data comes from the wider Caucasus Ecoregion.

2.2 Ecosystem Diversity

Georgia has a large variety of landscapes and biomes that contribute to its outstanding biodiversity. Georgia has very high mountains (the Greater Caucasus) along its northern frontier, and lower mountains (Lesser Caucasus) and volcanic mountains in the south, all interspersed with numerous valleys and plains. Terrestrial habitats range from low-lying coastal areas thru a variety of forest types, grassland, steppes, up to high alpine mountains and meadows. Aquatic habitats include the brackish Black Sea, a number of rivers that drain into it, a number of lakes and many coastal and interior wetlands.

2.2.1 Terrestrial ecosystems

Eastern and western areas of Georgia differ in climate and topography, and are characterized by different landscape zones. Western Georgia has five major altitudinal zones ranging from forests (from the coastal plain to 1,900m), the subalpine zone (1,900 to 2,500 m), the alpine zone (2,500 to 3000 m), and up to the

nival zone (greater than 3,600 m). Eastern Georgia includes similar subalpine, alpine, subnival and nival zones, but the forests begin at 600 m, below which is a zone not found in western Georgia, the semi-deserts, steppes and arid woodlands.

Within all of these altitudinal zones are mixed a variety of different habitats, many with unique and endemic species of plants and animals. Different substrates, such as the limestone caves and unusual soil types influence the biodiversity in a variety of distinctly different pockets within the overall biomes. A more complete description of the terrestrial biomes of Georgia was prepared as part of the National Biodiversity Strategy and Action Plan (NPSAP) process and is provided in Annex D.

Forests of a variety of types depending on the altitudinal zone, substrate and climatic conditions, cover between 40-48% of Georgia, depending on the data source. These forests vary in their structure and health, and many have been over-harvested and thinned to provide timber and fuel wood. One indicator of the health of forests is the amount of canopy cover, as viewed by satellite imagery. According to World Resources Institute (WRI) data based on year 2000 satellite imagery, only a small portion (15%) of Georgia's forests had a canopy cover greater than 75% and more than twice as much forest area (35% of Georgia's forests) only had a canopy cover of less than 10%, with the rest of the forest area falling somewhere between. There is no data to show how this situation has changed in the ensuing years.

Humans have been present in Georgia since well before recorded history, and the influence of human populations has shaped these natural ecosystems in the past, and continues today. According to the most recent data from the CIA Factbook, about 11.5% of the land area of Georgia is arable land and 3,8% is planted in permanent crops. WRI classifies land use differently and says that 39% of Georgia's land is covered with cropland and a crop/natural vegetation mosaic, with shrub lands, savannah and grasslands accounting for another 11% of the land area. Data from the Environmental Review of Georgia 2003 differs and says that 43.4 % of Georgia's land is used for agriculture, primarily pastureland, and that 26.2 % of the land is arable. Main crops in Georgia include wheat, maize, grapes, tea, citrus fruit, potatoes and vegetables.

2.2.2 Aquatic ecosystems

Georgia is a land rich in water resources, and encompassing a number of rivers and streams, lakes, and wetlands that provide habitat for a diversity of aquatic species.

Rivers drain into either the Black Sea to the west or through Azerbaijan to the Caspian Sea in the east. The longest rivers passing through Georgia include the Mtkvari (847 miles), Chorokhi (272 miles), Alazani (218 miles), Rioni (203 miles), the Tori (199 miles) and the Enguri (132 miles). Of these, the Rioni River, which drains into the Black Sea, is known to be an especially important spawning area for threatened sturgeon species. Water pollution is a problem in most of these rivers, leading to a decline in aquatic health and biodiversity.

Many wetlands of varying types and extent are found throughout Georgia and provide important habitat for both resident and migratory bird species. Many of these wetlands are peat bogs, especially in the Kholketi area of western Georgia and also in pockets at higher altitudes. Invasive cattails (*Typha spp*) and reeds (Phragmites spp.) are typical vegetation found in these wetland areas, although a variety of other native plant species area found as well.

Georgia also contains a number of natural as well as impounded lakes, primarily in the southern part of the country. The largest lakes in Georgia are Lake Paravani (37.3 sq. km.) and Lake Kartsohki (26.2 sq. km.) and the deepest include impounded Lake Titsa (116 m deep) and Lake Amtkeli (ranging from 72- 122 m in depth.)

The Black Sea, bordering western Georgia is also an important area of biodiversity for the country, as well as an important access and shipping point connecting to the Mediterranean Sea. This inland sea is characterized by deep water and surface waters that do not mix and a salinity that varies from 18 to 18.5 parts per thousand, about half the salinity of major oceans of the world. Due to the numerous rivers that bring in agricultural effluent from surrounding countries, the Black Sea is often subject to extreme eutrophication and associated algal blooms. The Black Sea is home to endangered and economically valuable sturgeon species, a number of marine mammals, and many other rare, endemic, and economically important species.

2.3 Species Diversity and Conservation Status

Because of its varied climate, altitudinal zones, and geographic location the species diversity in Georgia is unexcelled among temperate countries of the world. The association of various key vertebrate species in Georgia with various ecosystems is presented in Annex D.

The biodiversity of Georgia has been widely recognized as a "hotspot" in international biodiversity conservation programs and planning. Due to the diversity of species and ecosystems in Georgia and neighboring countries, internationally the Caucasus Ecoregion is considered a global hotspot for biodiversity by CI, WWF, and other conservation groups and donors collaborating in the CEPF. Georgia and the rest of the Caucasus Ecoregion are also identified as one of WWF's Global 200 Ecoregions for biodiversity.

Georgia maintains a country Red List of threatened species, which differs a bit from those species that have gained international conservation status in the International Union for Conservation of Nature (IUCN) Red Data Book. The latest version of the full Red List for Georgia is presented in Annex B. According to the Red List administrator, David Tarkhinshvili, there has been little interest in updating and verifying this list by academics in the country, but it is used in policy decisions. Only the IUCN global Red Data Book numbers for species under the highest threat categories of Endangered, Threatened and Vulnerable for various taxonomic groups are recorded in the text below. Including all the threat categories, like Data Deficient, Near Threat and Least Concern, there are 15 Georgian plants and 491 animals listed in the latest IUCN Red Data Book (2008).

2.3.1 Mammals

Georgia has 108 mammal species, including 10 insectivores, 29 bats, 1 rabbit, 8 ungulates, 18 carnivores, and 3 small cetaceans found in the Black Sea. Large mammals, including brown bears (*Ursus arctos*) and wolves (*Canis lupis*), exist in Georgia, although in reduced populations due to human hunting pressures. Asiatic leopards (*Panthera pardus*) and striped hyena (*Hyaena hyaena*) once ranged widely over Georgia but are now extinct or nearly so. A number of smaller felid, canid and mustelid carnivore species are still found in a variety of natural habitats. Ungulates are especially recognized as conservation concerns in Georgia. Two species in the genus Capra, the Eastern (*Capra cylindricornis*) and Western Caucasian (*Capra caucasica*) turs, are endemics to this region and a third related species, the Bezoar goat (*Capra aegagrus*) is found in small isolated populations. Georgia and the rest of the Caucasus region have been named a large herbivore hotspot by WWF's Large Herbivore Initiative, primarily due to these species. Ten species of mammals in Georgia are in the 2008 version of the IUCN Red Data Book listed as Critically Endangered, Endangered or Vulnerable.

2.3.2 Birds

Like mammals, birds have received considerable conservation attention in Georgia. More than 360 species of birds are found here, including both year-long residents and at least 100 migratory species. Georgia is an important migratory path for many species traveling from Europe and Russia and south to Africa and Asia. The lakes and wetlands of Georgia attract many waterfowl species that migrate through or winter here. Many hawks, vultures and other raptors also migrate in large numbers through major migratory routes in Georgia

and others are found here year round. Three endemic bird species, the Caucasian snowcock (*Tetraogallus caucasicus*), the Caucasian black grouse (*Tetrao mlokosiewiczi*) and the Caucasian warbler (*Phylloscopus lorenzi*) are found only in Georgia and neighboring areas in the Greater Caucasus Mountains. Globally threatened great rosefinch (*Carpodacus rubicilla*) and Guldenstadt's redstart (*Phoenicurus erythrogaster*) also occur in the Caucasus, where they are dependent on the berries of the shrub, *Hippophae rhamnoides* during the winter. In all, the latest version of the IUCN Red Data Book (2008) includes 10 bird species in Georgia that are Critically Endangered, Endangered or Vulnerable.

2.3.3 Reptiles

Georgia has 53 species of reptiles, including 3 chelonians, 27 lizards and 23 snakes. Three snakes and 12 lizards are endemic to Georgia and neighboring areas in the Caucasus. The most recent Georgian Red List includes eleven reptile species. Seven reptile species found in Georgia are listed in the IUCN 2008 Red Data Book as Critically Endangered, Endangered or Vulnerable.

2.3.4 Amphibians

There are 13 species of amphibians in Georgia, including four newts and salamanders and nine frogs and toads. One frog species is endemic to Georgia and two others are endemic to the Caucasus region. The distribution and populations of a number of amphibian species are declining in extent and numbers, nearing extinction of many once numerous local populations. The IUCN (2008) Red Data Book lists one threatened amphibian in Georgia.

2.3.5 Fish

The 84 species of freshwater fish in Georgia inhabit two main watersheds, one that flows to the Black Sea and the other that flows through neighboring countries to the Caspian Sea. The majority of freshwater fish in Georgia are found in both watersheds. Nine native freshwater fish are endemic to the Mtkvari River including several species of economic importance (several *Barbus spp.* and *Varicorhinu capoeta*). Ten fish species are listed in the 2008 IUCN Red Data Book as Critically Endangered, Endangered or Vulnerable. In addition to these native freshwater fish, nine more species have been introduced into Georgian waters during Soviet times, and their populations continue to flourish, posing threats to native fish populations.

Marine fish species inhabiting the Black Sea within Georgia's littoral zone are not well catalogued or studied and are not presently included in the Georgia Biodiversity Strategy and Action Plan (BSAP) (2005). The Black Sea coast of Georgia is widely believed to be an important habitat for sturgeon (Acipenseridae) and is home to a number of species including beluga, Russian Sturgeon, ship sturgeon, star sturgeon and the Atlantic sturgeon. Although stocks of sturgeon globally are known to be in alarming and rapid decline and these species are included in the IUCN Red Data Book and many Black Sea country's national Red Lists, Georgia has not included them in any official conservation documents.

2.3.6 Invertebrates

Invertebrate species are less well known in Georgia, but those that have been catalogued include more than 26,000 species, many of them arthropods and mollusks. Moths and butterflies are among the most studied invertebrate groups in Georgia, and of the more than 500 species described, about a third of them are endemic or relict species. Nine invertebrate species are listed as Critically Endangered, Endangered or Vulnerable in the 2008 IUCN Red Data Book.

2.3.7 Plants

The diversity of ecosystems in Georgia and the long term isolation of specific habitats have led to an exceptionally high rate of endemism in plant species. Of the estimated higher 4,500 plant species found in Georgia, 9% of these are endemic to Georgia, and 14% are endemic to the wider Caucasus region. This rate of endemism is higher than that of many other much larger temperate countries. It is thought that nearly half of the species of vascular plants have food, medicinal, timber, forage or other economic and social value to the people in the region. Ten species of vascular plans have become extinct in Georgia in recent times, 50 are critically endangered, 300 are rare and 140 have declined significantly. In addition, more than 2,700 species of algae have been counted in Georgia so far, but these are not considered in conservation plans.

2.3.8 Agricultural Biodiversity

Georgia and the wider Caucasus region is considered to be a center for agricultural biodiversity and a number of globally important food crops and domesticated animals are thought to have originated in this area. Grains, legumes, fruits and other crops were grown here beginning in the 5th century B.C. and varieties have diversified ever since.

Georgia has a great diversity of crop species—as many as 100 major crop types and as many as 350 local species of grain-crops, for instance. Garden beans are another good example. In the East Georgian province of Kalkhetia alone at least 48 varieties have been documented.

The unregulated importation of genetically modified crops, and the introduction of non-local and often inferior seeds and plants into Georgia has rapidly eroded the availability and survival of many important local crop species. Traditional knowledge about local crop cultivars and growing methods and reduced availability of local stock and seeds has caused great declines in modern times.

Some examples from recent research reports are particularly alarming. For instance, according to the International Center for Agricultural Research in Dry Areas (ICARDA), in the last century there were 14 varieties of wheat of local origin, 144 varieties and 150–sort populations in Georgia, and most have disappeared except for in small research collections. Other food crops are also in a state of declining diversity in Georgia. A similar situation has been chronicled with grapes. Although more than 500 varieties have been recorded in Georgia only about 300 still exist in seed banks, live research collections, or in village farms.

The Plant Genetic Resources in Central Asia and Caucasus, a project of ICARDA, is working to study and conserve many of these species and varieties. A full list of crop varieties originating in Georgia and being preserved is presented in Annex F.

In addition to wild origins of crop species and the threatened survival of many extant varieties, Georgia is also thought to be the origin of a number of domesticated animal species, and especially domestic goats and sheep. Caucasian shepherd dogs, a large breed of dog used to herd sheep and defend them from wolves, also were bred in this region for hundreds of years.

2.3.9 Other Organisms

The extent and diversity of organisms further down in the evolutionary scale have received little attention in Georgia or in any other parts of the world. The number of species of bacteria, viruses and other microorganisms has not even been estimated.

2.4 Value of Georgia's biodiversity

2.4.1 Plants and Animals

The plants and animals of the forests, wetlands, rivers and other natural habitats in Georgia provide people with many resources necessary to their daily lives and also with economic values as well.

Georgians have an exceptionally long history of use of the products from the forests that surround them. Natural products such as wild fruits, nuts, berries, mushrooms, and edible greens, tubers, and other plant products still make their way to many dinner tables around the country today. Other plants extracted from forests are used medicinally in many villages. It is estimated that as many as one half of the naturally occurring vascular plants in Georgia have some value to the people of the country. In addition, many people living near forests today are reliant upon fallen timber in the forests for fuel wood and in some cases still use timber as building materials. The natural grazing lands of Georgia also provide fodder for domestic sheep, goats and cattle that are herded from one area to another over the course of the seasons.

Forest animals, such as deer, wild boar and smaller game are hunted for sport and for meat. In some cases even endangered species such as the wild goats (tur) inhabiting high altitudinal zones are hunted illegally by residents and high ranking officials who pay for these "rights" to obtain trophy heads.

It is difficult to put an economic value on the forest products used by residents near the forests, but on a different scale, the timber resources of Georgia are an economic asset to the country. Although for many years there have been many private Georgian timber companies harvesting trees, in the past few years the Department of Forestry has also given large scale concessions to international timber companies to harvest these resources as well. The location and extent of these concessions is somewhat controversial, since there is a lack of data on the status and health of the forests in Georgia to inform the concession allocation process. A map showing forest concessions is in Annex A.

The rivers, streams, lakes and coastal areas of Georgia provide people with fish, crayfish, snails and other edible food items. Hunting of waterfowl and other birds provides sport and also supplemental food for many Georgian residents. Some of the fish in Georgia, notably, sturgeon species with delectable roe, have international economic value and are still commercially fished despite a lack of information on the stocks of these animals and international concern about their status.

2.4.2 Ecotourism

In addition to plant and animal products that are consumed or otherwise utilized by residents or sold for economic gain, there are other economic values of the natural landscapes of Georgia that are gaining recognition. Ecotourism, for instance, is becoming an increasing pastime and sport in Georgia, bringing with it the money tourists and residents alike spend in hotels, restaurants, and to tour operators around the country. Bird watchers from around the world flock to Georgia to see the endemic species of birds, and to watch the stunning migrations of waterfowl and raptors along the flyways in the spring and fall. Hikers, mountain climbers, and river rafters also are coming to Georgia in increasing numbers to partake of the scenery and spend their money along the way. In other countries in the region, the development of ecotourism programs have resulted in both economic and conservation success. For instance, in Bulgaria nature based tourism was a priority during last decades, which resulted in several positive outputs: many privately managed protected areas appeared in the country, species conservation programs were fostered, the number of foreign visitors significantly increased and many education programs were attached to visitor centers.

2.4.3 Value of Ecosystem Services

It is widely known that forests, wetlands, lakes, streams and other natural habitats provide ecosystem services to the environment and the people living here. Wetlands, for instance, provide drainage, water regulation, water supplies, disturbance regulation, and are especially important in waste regulation and control. Many of these necessary functions decline when natural wetlands are modified through channelization for draining and for agricultural irrigation.

The forests that cover an estimated 40% of Georgia's landscape are an especially important resource in climate regulation and also protect clean water supplies. It has been difficult to measure the economic value of forests and other resources, but in 1997, an international team of economists and scientists worked together to provide a compilation of the global ecosystem services values of various habitats on earth (Costanza, et al, 1997). Their estimates, in 1994 US dollars per hectare are recorded for temperate forests, like those of Georgia, in Table 2.1. Using conversion tables to account for inflation, the estimated value of various functions are presented in 2008 US dollars as well.

Table 2.1 The Value of Ecosystem Services of Temperate Forests, from Castanza et al, 1997, converted to 2008 US dollars

Ecosystem Service	1994 US $ per hectare per year	2008 US $ per hectare per year
Climate regulation	88	126
Soil Formation	10	14
Waste treatment	87	120
Food Production	50	72
Biological Control	4	6
Raw Materials	25	36
Recreation	36	52
Cultural	2	3
TOTAL	**302**	**433**

For Georgia's estimated 27,600 hectares of forested land (40% of the total area), the economic value of ecosystem services that the forests provide is a staggering $US 11,950,800 per year.

2.5 Biodiversity Status Updates

The tumultuous political events in Georgia over the past ten years have had an impact on the biodiversity of the nation. Some of these impacts are positive for the natural resources in the country. For example, here, unlike most countries, the human population in Georgia is declining due to increased emigration, reduced immigration and consistently low birthrates. According to United Nations data, the population was 4.3 million in 2008, a decline in 1% from 2007, and continuing to decline. The declining population puts less pressure on natural resources, and problems such as the conversion of forests and wetlands to agricultural areas is rarely a problem. When the Soviet presence receded and trade was restricted between these countries, the once lucrative exports of wine, mineral water, fruits, vegetables and grain to Russia were curtailed, resulting in further reductions of crops and agriculture. In fact, many hectares once planted with crops have now gone fallow.

When under Soviet control, Georgia's protected areas were given the strictest levels of protection, and few people were given rights to enter the forests. Now, protected area managers are working with local

communities to enable a limited amount of fuel wood and natural product collecting in buffer zones around protected areas, and in those areas designated for subsistence use. Traditional hunting of migratory waterfowl is permitted now, and regulated through a license system. It remains to be seen, how well these activities are enforced and monitored. If well managed under a sustainable use rubric, this might have little negative impact on the biodiversity of the country.

One negative change in biodiversity in the country is also due to the Soviet withdrawal. The poverty that impacted the country in the post-Soviet years resulted in increased hunting of large endangered ungulates, like the Caucasian turs and Bezoar goats, for food and subsistence. Numbers of these animals were greatly reduced, to the brink of endangerment. In Lagodekhi Protected Area, for instance, populations of tur went from estimated 3,000 animals, down to the about 300 remaining today. The remaining populations are now mostly confined to protected areas, where their numbers are protected and monitored. With such care, eventually, these numbers should return to pre-hunting levels.

3.0 IMPORTANT LANDSCAPES

3.1 Introduction

Georgia has many areas that are important for the successful conservation of its biodiversity, including an expanding system of protected areas and a number of other areas not currently protected but important as stopovers for migratory birds, corridors between wildlife rich zones and habitat of rare and threatened wildlife and plants. A number of these areas that have attained global recognition are described here. Maps relating to this section are provided in Annex A. It is clear from comparing these maps, that there are some large gaps remaining in the Protected Area system of Georgia that are needed to further protect the important landscapes and biodiversity of Georgia.

3.2 Protected Areas

One of the principle ways that biodiversity is protected in Georgia is through existing and proposed Protected Areas. The Agency of Protected Areas (APA) of Ministry of Environment Protection and Natural Resources (MoE) is one of the strongest divisions of the MoE largely due to its visibility in the tourism sector, considered an economic driver in the country. Georgia currently has about 7% of its land included in protected areas in IUCN Protected area categories I-V, which are also recognized by Georgian law. At present there are 14 Strict Nature Reserves (Category I), 8 National Parks (Category II), 14 Natural Monuments (Category III), 12 Managed Nature Reserves (Category IV), and 2 Protected Landscapes (Category V) in Georgia. The oldest protected area in Georgia is Lagodehki Strict Nature Reserve, founded in 1912, and other areas soon followed. Descriptions of these protected area categories are given in Annex H.

Stemming from WWF's Living Planet activities in Georgia in 2001, the Georgian government announced a plan to include 20% of the land area in protected areas by 2010. With donor support and government and NGO action, a number of new protected areas, including Javakheti, Machakhela—Pshav-Khevsureti, and the Central Caucasus and the expansion of two current areas—Kazbegi and Algeti—by 2010 18.4% of land will be protected, nearly reaching this lofty goal. Two protected areas being established Javakheti (bordering Armenia) and Machakhela (bordering Turkey) are both transboundary areas that require international collaboration to protect contiguous habitat in adjacent countries. A map of current and new protected areas is found in Annex A.

A number of donors and NGO's are working closely with the APA, an arm of the MoE strengthened in 2008 to further develop the protected areas program. The Government of Georgia (GoG) has increased the PA budget from $1.12 million in 2007 to $2.5 million in 2008, and to $3.8 million in 2009, showing strong support for these initiatives. Along with the positive activity happening in PAs, the number of visitors has increased nearly tenfold from 5,669 in 2005 to 53,419 in 2008, and continuing to rise in 2009.

By all accounts, the system of PAs in Georgia is increasingly successful in both preserving rare and fragile habitats and in drawing people to them for recreation and educational uses.

3.3 Important Bird Areas

The Georgian Centre for the Conservation of Wildlife (GCCW) in conjunction with Birdlife International lists 31 Important Bird Areas (IBA) in Georgia, some included in Protected Areas, but many not. These sites include: Adjara-Imereti Ridge, Alazani Valley, Algeti, Batumi, Bogdasheni Lake,Eastern Caucsus, Gumista, Iori Region, Jandari Lake, Kartsakhi Lake, Kazbegi, Khanchali Lake, Khevsureti, Kintrishi, Kolkheti, Kvarnaki Ridge, Lagodekhi,,Liakhvi, Lower Kura Valley, Madatapha Lake, Meskheti, Pharavani Lake, Pskhu,

Racha, Ritsa,Sagamo Lake, Shavsheti Ridge, Svanti, Tabatskuri Lake, Trialeti Ridge, and Tusheti. Twenty-two of these sites contain species of global concerns and sixteen sites contain species with restricted ranges. A map of these sites is presented in Annex A. A full description of each site, a map of the areas and the important birds found there can be obtained at the Birdlife International site: www.birdlife.org.

Four of the sites—Batumi, Kartsakhi Lake, Kolkheti and Madatapha Lake are listed due to the large aggregations of birds found here, as wintering grounds or stopovers during annual migrations. Georgia is located along major migratory pathways for waterfowl, raptors and songbirds passing from Russia and Europe to North Africa and beyond, shown in Annex A.

3.4 Important Biodiversity Areas

An Ecoregional Conservation Plan for the Caucasus (2006) was prepared during a two year process led by WWF with more than 200 global and regional experts participating. During this process a number of areas were determined to be priority conservation areas and corridors. Many of them fall within Georgia's boundaries and a few involve transboundary areas between Georgia and neighboring countries. A map of these areas is presented in Annex A.

Many of these identified important areas and corridors are in the Greater Caucasus Mountains bordering Russia and Azerbaijan, areas known for endemic species and remaining populations of threatened focal animals. Some identified important areas here include Svanti, the Western Greater Caucasus, Racha-Central Caucasus, Khevi-Tusheti, the Askhi-Karst Massif, Trileti, and Lagodekhi-Zagatala. The freshwater rivers and floodplains of the Middle Kura River, the Alazani river valley and floodplain and the left middle bank of the Mtkvari (Kura River) were selected due to their freshwater resources and aquatic biodiversity.

A number of areas in the Lesser Caucasus in Georgia and/or shared with neighboring countries were also selected, such as Javakheti, Manglisi, Fori-Mingechevir, Trialeti and the West Lesser Caucasus.
Finally, priority areas were selected along the Black Sea Coast, including humid lowlands and wetlands of Kuban-Rioni and the Kolkheti Lowlands primarily for the marine and aquatic resources threatened there.

4.0 SOCIAL, ECONOMIC & POLITICAL CONTEXT

4.1 Overview

The institutional framework in Georgia in the field of biodiversity conservation has significantly changed during the last 5 years, although MoE remains as the primary government agency with responsibility for biodiversity conservation. Environmental governance is now more centralized – Forestry and Protected Areas were State Agencies (under direct supervision of the President of Georgia), and the Environmental Inspectorate was under the coordination of the Ministry of Interior. Now these sectors are included in the Ministry of Environment (Figure 1), but the renewable natural resources (forestry, wildlife, fish) licensing function has been given to the Ministry of Economics.

The capacity of territorial bodies of the Ministry of Environment are being slowly degraded (in terms of staff number, state budget allocation, functions, etc.), and now the newly created Ministry of Infrastructure and Regions has more responsibilities for environmental management at municipal levels. The Ministry of Food and Agriculture used to have a management authority for grazing and commercial fisheries on inland water bodies, but these functions were also transferred to the Ministry of Economics.

The Ministry of Education and Sciences has become an important government agency with indirect roles and functions in environmental management, including biodiversity conservation. This is due to the transfer of management authority of academic institutions to this Ministry. Life sciences departments at Universities (mainly in the Tbilisi State University and Chavchavadze University), Institutes of Zoology and Botany are now Legal Entities of Public Law (LEPL) under the management of the Ministry of Education and Sciences. This Ministry is also responsible for elementary, basic and high school education and relevant curricula development, which is an important niche for integration of biodiversity conservation concerns. Academic institutions may play a significant role in supporting national biodiversity monitoring and filling information gaps and in improving human resources capacities for conservation organizations, but this potential is not fully realized at this time.

The Parliament of Georgia could play a significant role in advancing policy and legal background of biodiversity conservation, but the Environment Committee of the current Parliament is very weak. No initiatives during the past several years have been taken by this committee.

4.2 Ministry of Environment

In general, the MoE has little power and respect in higher government bodies of Georgia, and is considered a barrier for economic development goals and objectives. It has been suggested that the MoE be eliminated and replaced with an Environment Department or Division in the Ministry of Economics or placed in the Ministry of Agriculture. The weakness of the MoE is demonstrated by the fact that it has been led by eight different ministers in the last 4 years and also that the legal requirements of EIA for development projects are now significantly weakened in Georgia compared to the period before 2004. Annex K details this situation in an Aarhus Report analysis that was recently completed.

Within the Ministry of Environment, the primary unit for biodiversity conservation is the "Service of Biodiversity". This unit is responsible for drafting biodiversity related national policies and strategies (jointly with the Department of Policy and International Relations), legal revisions, biodiversity monitoring, species conservation, use of wildlife resources (hunting, fishing, wild plant collection) and acts as a focal point for biodiversity related international conventions. At the same time, this is probably the weakest unit in the MoE – it was downgraded from "Department status" to "Service" status, and has a very limited number of staff and budget.

The State Department of Protected Areas (DPA) was eliminated in 2004 and the function of protected areas strategy and policy formulation and management of individual sites is now assigned to the APA that has the status of LEPL under the MoE. As tourism development is considered as one of the main objectives of this agency, it is significantly strengthened institutionally – state funding allocation tripled during 2007-2009 period, the number of staff has significantly increased and international donor funding has increased as well.

The State Department of Forestry (SDF) was also eliminated in 2004 and the Department of Forestry of the MoE is now responsible for developing forest strategy and policy, as well as oversight of the management of the forest estate. It does not have the licensing function, but should act as information provider to the licensing department of the Ministry of Economics. Lack of information on forests is the main constraint of the department – forest inventory data are outdated, and the budget allocation for forest inventory is inadequate.

4.3 Non Governmental Organizations

There are number of national and international non-governmental organizations in Georgia focusing their work on biodiversity conservation.

4.3.1 International NGOs

WWF Caucasus Program Office and IUCN South Caucasus Program Office are the most active international conservation NGOs in Georgia that have an in-country physical presence. WWF has been operating in Georgia since 1991, while IUCN opened its office in 2007. Protected Areas, forestry, species conservation, policy level assistance and awareness-raising are their main fields of operation.

CI is also active in Georgia through provision of small and medium grants to national NGOs under the Critical Ecosystems Partnership Fund (CEPF). BirdLife International and Flora and Fauna International are operating in Georgia through their national partner NGOs.

4.3.2 National NGOs

The spectrum of national conservation NGOs has not changed significantly since earlier editions of this Biodiversity Analysis, but organizations are becoming more niche-oriented, focused and specialized in certain fields. Public environmental awareness-raising campaigns and environmental monitoring remain key areas of their involvement, but some organizations are also specialized in narrow areas too. As before, a number of Georgian national NGOs work in partnership with International NGOs on various projects.

A few NGOs in Georgia focus on particular taxa. For instance, the Noah's Ark Center for the Recovery of Endangered Species (NACRES), along with partners WWF and Flora and Fauna International, is conducting research and conservation efforts on various large mammals, such as leopards, bears and turs. Similarly, the Georgian Field Researchers Union's Campester program focuses on bat conservation and The Georgian Center for the Conservation of Wildlife (GCCW), in partnership with Birdlife International, focuses, on bird conservation. The Biological Farming Organization, ELKANA, is concerned with organic farming and also agrobiodiversity matters and a number of small groups focus on the conservation of native plants, education (Science Teachers' Association), etc.

Other national NGOs, including the newly formed Science Teachers' Association, specialize in formal education at the primary and secondary levels and one NGO, GCCW also writes and distributes science textbooks that include biodiversity matters and are approved by the Ministry of Education. Other NGOs in Georgia specialize in environmental advocacy fields, e.g. Caucasus Environmental NGO Network (CENN), Green Alternative, Georgian Greens, We Greens, etc.

The network of conservation groups operated at local levels is also increasing – in most districts of Georgia there is at least one environmental organization and among other priorities, biodiversity conservation is included in their program.

The major issue is that most national and local conservation NGOs are opportunistic as they fully depend on donor funding.

4.4 Universities

There is no degree of environmental management, conservation biology or anything similar available at any university in Georgia. Tbilisi State University does, however, have a Life Sciences Division that includes departments of Ecology, Zoology and Botany that provides opportunities for conservation oriented students to get a good grounding in these relevant subjects. Also, the newly created Chavchavadze State University has a Life Sciences Department that has been created with the objective of developing biodiversity management curricula. Due to lack of professors in this field, this faculty still is mainly focused on teaching science subjects, but is slowly integrating courses such as conservation biology. In addition, research on endangered species population assessments takes place at this faculty.

4.5 Biodiversity related policies and laws

National Environmental Action Plan (NEAP, 2000) and National Biodiversity Strategy and Action Plan (NBSAP, 2005) are the main national level policy documents related to biodiversity conservation. Both of these documents are outdated and not used in practice in Georgia. The MoE began the process of preparing a new NEAP and NBSAP in 2009.

A dozen drafts of the Georgian Forestry Policy were developed during 2001-2009, but none of these documents were approved by the government, mainly because of frequent changes of views and positions in this field, and frequent changes of ministers in the MoE. In 2009, the APA prepared a new Protected Areas Strategy and Action Plan.

Annex H provides a list of laws which apply to biodiversity conservation, forests and natural products. No new law in the environment field has been developed and approved since 2003, but numerous amendments were made in individual laws. The most notable result is the weakened EIA legislation and the increased level of contradictions among different laws. The MoE recently declared its objective to prepare the Environment Code by March 2010, which would incorporate all legal acts in the environment field.

4.6 International Treaties

Georgia is a party to the major international treaties concerning biodiversity and natural resources. These include: Convention on Biological Diversity 1994, United Nations Framework Convention on Climate Change 1994, Convention on International Trade in Endangered Species of Wild Fauna and Flora 1996, Convention on Wetlands of International Importance especially as Waterfowl Habitat 1997, Convention on the Conservation of Migratory Species of Wild Animals 2000, Agreement on the Conservation of Bats in Europe 2002, and a number of others. Since the Biodiversity Analysis Update in 2003, a few new environmental treaties have been ratified by Georgia. Those most relevant to biodiversity conservation include: Convention on the Conservation of European Wildlife and Natural Habitats (2009), Cartagena Protocol on Biosafety to the Convention on Biological Diversity (2009); and the Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, (2006). A full list is presented in Annex G.

The focal point for biodiversity-related international treaties in Georgia is the MoE. A MoE staff member assigned to each convention ensures the development and submission of the country reports and other related activities. The GoG tries to meet requirements of all signed treaties, but mainly relies on implemented activities of international and national NGOs and international donor funded projects. There is no dedicated state budget for implementation of the conventions. One of the main barriers is the lack of capacity – for example, one of the major requirements of the Ramsar Convention on Wetlands is development of a National Policy on Wise Use of Wetlands. Georgia is a Member State of Ramsar since 1997, but no step has been made yet to fulfill this requirement.

GoG gets support from international organizations (WWF, IUCN, various UN offices) in meeting requirements of different conventions. For example, WWF provides intensive support for the Programme of Work on Protected Areas, one of the latest guideline documents of the Convention of Biodiversity (CBD).

Georgia, as many other developing countries, has repeatedly expressed the need for tools to support and streamline the implementation of different conventions. Based on the assumption that various agreements address similar environmental challenges, UNEP and IUCN, in collaboration with the UNEP World Conservation Monitoring Centre (UNEP-WCMC) and the IUCN Environmental Law Centre (IUCN-ELC) therefore developed the TEMATEA Project on Issue-Based Modules in 2006 (www.tematea.org). This project supports a better and more coherent national implementation of biodiversity-related conventions. During 2008-2009, the GoG was supported by IUCN to apply TEMATEA tools in national implementation of biodiversity related conventions.

4.7 Impacts on Biodiversity from Current Events

4.7.1 Russia-Georgia conflict in August, 2008

During the armed conflict in Georgia in August 2008 a number of forest fires occurred as a consequence of military activities in several sites of the country (Shida Kartli and Samtske-Javakheti regions) and damaged 1,085 hectares of forests. In addition, according to the MoE, the administration buildings, interpretation and education infrastructure and some key ecosystems were damaged in three protected areas-- Borjomi-Kharagauli National Park, Kolkheti National Park and Liakhvi Nature Reserve.

Several commissions and experts assessed the damage and made recommendations. 1) The National Commission created within the MoE recommended that affected forests be fenced to avoid external impact on natural succession and re-generation. 2) In September-October 2009 the joint Organization for Security and Co-operation in Europe (OSCE) and UNEP conducted an Environmental Assessment mission to Georgia. 3) The World Bank conducted a post-conflict needs assessment mission. 4) OSCE conducted the detailed assessment of forest fires in Borjomi district. In addition some assessments and reports were prepared by local NGOs.

Most of these assessments were done immediately after the conflict and during short time periods and do not provide detailed scientific analyses. In some cases, they contradict each other. Considering high "political temperature" of this armed conflict, some of the assessments are a bit exaggerated. In fact, there is almost no direct damage to Borjomi-Kharagauli National Park and Kolkheti National Park (no information on Liakhvi Reserve as this PA is in South Ossetia). Already forest areas damaged by fires have started re-generation and no erosion is observed. There is, however, no precise assessment of the possible impact on biodiversity of oil spills resulting from damaged pipelines.

4.7.2 Internally Displaced People (IDPs)

According to the UN Refuges Agency (http://www.unhcr.org/4b274bc76.html), there are 230,006 IDPs in Georgia, representing about 62,000 households. The vast majority, about 212,113 people, have been in

protracted displacement since the 1990s, mostly from Abkhazia. Nearly 10,000 are in protracted displacement within South Ossetia. There are more women then men (59% - South Ossetia and 62% - Abkhazia) with children under the age of 18 representing around 30% of the total IDP population. Some 85,000 IDPs (38%) live in Tbilisi and nearly half of them live in collective centres.

Many IDPs have since returned to their homes in South Ossetia and adjacent areas, and in the Gali, Ochamchire and Tkvarcheli areas within Abkhazia. At this time, 106,134 people continue to live in situations requiring protection and humanitarian assistance. The majority of recent IDPs (20,800) from the Russian-Georgian conflict of 2008 are now in the so-called group of "Settled Families" while the others are dispersed in Tbilisi (4,100) and Gori, Rustavi and Kutaisi (1,364).

Thirty-eight newly built settlements in Shida Kartli, Kvemo Kartli and Mtskheta-Mtianeti regions house more than 21,000 people displaced in the August, 2008 conflict. These new settlements are on agricultural lands in neighboring areas of old settlements. No forests or wilderness was damaged to build these new settlements. International aid organizations and GoG provided assistance to these settlements to minimize potential negative pressure on environment and natural resources. There is no visible and serious threat to the biodiversity of Georgia because of IDPs.

5.0 BIODIVERSITY PROGRAMS AND ACTIVITIES

5.1 Government of Georgia

The GoG's programs and activities that promote biodiversity conservation and sustainable natural resources management are very limited in scope and budgetary allocations. Since the government assumes that international donors will provide the funds for biodiversity conservation and natural resource management, the government does not budget for biodiversity conservation. Even the preparation of policy and strategic documents, like the National Environmental Action Plan or National Biodiversity Strategy and Action Plan, are fully dependent on donor funding.

There is no single program or project funded by the government of Georgia in the biodiversity conservation field, except the increasing budget allocation for protected areas management. In 2008, a separate budget was allocated to improve visitor infrastructure in Sataflia reserve (ca. 400,000 USD). This protected area was chosen by the government due to its tourism potential (caves and petrified dinosaur footprints), not considering that it does not have any biodiversity conservation value – very small in size (354 ha) and no important biodiversity in it.

In addition, few staff of Biodiversity Service of MoE receive salaries from the state budget but instead are paid with donor support and their salaries rarely exceed 15,000 USD annually.

5.2 Non Governmental Organizations

As described in Chapter 3 there are numerous NGOs in Georgia in the nature conservation field, but their programs and activities are almost fully dependent on international donor funding. The only exception is GCCW, which is able to run its own programs by having unrestricted funds through the collection of membership fees, conducting bird watching trips and selling of publications.

5.3 Donors

Due to the global importance of Georgia's biodiversity, there are many international donors providing funding for nature conservation programs and activities in Georgia, including multilateral agencies (World Bank, GEF, United Nations Development Program (UNDP), United Nations Environment Program (UNEP), Organization for Security and Co-Operation in Europe (OSCE), etc.), bi-lateral agencies (governments of US, Germany, Norway, Sweden, Switzerland, Turkey, Greece, Finland, European Union (EU), etc.), International NGOs (WWF, IUCN, CI, etc.) and foundations (MacArthur Foundation, MAVA foundation, Open Society Institute, etc.). A matrix describing current donor activities, geographical focus, budget, and implementation dates is presented in Annex K.

5.4 Program Assessment

Donor funded programs and projects in Georgia in biodiversity conservation fields are significant in dollar amounts, but their effectiveness is questionable, as Georgia does not have clearly defined and constant policies and strategies in biodiversity conservation and natural resources management.

Currently, the majority of international funds go to improvement of Protected Areas status, including system level capacity building, strengthening and increasing the size of individual protected areas, and establishment of new protected areas. Although ecotourism and infrastructure has been provided, little attention is given to

species and habitat recovery aspects in PAs in these programs. This field can be considered as overfunded, but more prioritization is necessary within existing and planned projects.

There are limited programs and projects that address biodiversity conservation outside of protected areas. There is no political will in Georgia and almost no donor funding available for recovery projects of endangered species. The exception is the gazelle recovery project in Vashlovani National Park initiated by the APA with support from USAID/Georgia, the Turkish government and other donors.

The German government also made a commitment to assist Georgia (through a Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) project) in the establishment of National Biodiversity Monitoring System. This system will include the selection of key indicators, and capacity building to gather, store and analyze relevant information for use in policy formulation and priority setting activities. This is the only project addressing this important issue, It is in the initiation stage and hard to assess its effectiveness now. Agrobiodiversity has also received little attention, although a project managed by the Biofarmers Association "Elkana, "Recovery, Conservation and Sustainable Use of Georgia's Agrobiodiversity" was initiated in 2004 and is still ongoing.

There are a number of programs and projects addressing issues of sustainable management of natural resources in Georgia. Usually, these are small scale pilot projects and do not have significant impact on positive changes at the national level in terms of valuation of biodiversity and natural resources. Besides, often sustainability is lacking in these projects and after donor funds finish, projects do not continue operation. Larger scale programs needs to be initiated in this field with accurate sustainability/feasibility planning, and with wider involvement of local communities.

Numerous programs and projects address the environmental awareness raising issues, but the end result is not satisfactory. Furthermore, many experts assess the trend as negative – biodiversity conservation is significantly lower priority now in Georgia than 10 years ago (before these projects were implemented) and awareness at the public level remains very low. More focused and long-term visionary programs are required in this field. Programs addressing elementary, basic and high school education may be much more effective, considering the replicable character of such projects (e.g. trained teachers continue teaching, developed materials are used for a long time), mass effect (half million students annually in Georgian schools, plus their parents) and long-term results (school students will later influence all sectors of society).

The negative trend is observed in the level of donor funding for civil society strengthening in the environmental field. In the 1990s and beginning of the 20th century more funds were available for environmental NGOs, than now. Probably, the only exception is the US government, which intensively involves NGOs in the implementation of its programs. Most other international donors involve relevant government agencies in the selection of project implementing organizations, and due to this approach NGOs get less opportunity to implement projects.

5.5 Gaps and investment opportunities

This assessment identifies several clear gaps in donor funding, and these provide opportunities for USAID and other donors to invest effectively in the sector.

Lack of biodiversity conservation programs outside of protected areas, including the promotion of sustainable natural resource management practices

Although the recently initiated German government program aims to assist Georgia in the establishment of a Biodiversity Monitoring System, and there are some small scale pilot natural resource management projects, there is still a need for conservation activities outside of protected areas. Programs may include: integrated

natural resource management (e.g. watershed approach), endangered species recovery, community involvement in resource management, integration of biodiversity conservation aspects into regional development plans, etc.

Climate Change

Although international attention is increasing, and many donors plan to initiate climate change programs, there is still a gap in Georgia. Intensive communication and coordination is required with other potential donors to identify areas were USAID and other donors could best invest funds in climate change adaptation and mitigation programs in Georgia. In relation to biodiversity, Georgia's Second National Communication to the UN Framework Convention on Climate Change, 2009, pointed out two priority areas where climate change will have a significant impact: the Black Sea Coast and the semi-arid Dedoplistskaro municipality of Kakheti in Eastern Georgia. For instance, coastal protected areas such as Kholketi Natioal Park will be swamped with salt water as storms increase and sea levels rise, causing the destruction of freshwater habitats used by migratory birds. Changes in water temperatures will also change the species composition of fish and invertebrates in the Black Sea. In the now fertile Kakheti area, desertification is expected to impact not only crops, but also many native species of plants and animals. These should be considered as donor plans go forward to prepare for the effects of climate change.

Environmental Awareness and Education

Integration of biodiversity conservation and natural resource management in formal education may significantly change Georgian attitudes towards these topics and reduce a major root cause of biodiversity loss. This is a big gap in Georgia, as past and existing programs in environmental awareness did not bring significant results, and there are very limited attempts by international donors to integrate environmental subjects into formal education. USAID has an excellent opportunity to do this within existing and planned civic education programs.

Civil Society and Environment

Civil organizations in Georgia (NGOs, Community Based Organizations (CBOs), professional associations) that focus their activities in the environment field require assistance from international donors, as the level of funding for these organizations is decreasing. USAID should continue its efforts to intensively involve civil society in the implementation of its programs, and should design programs directly addressing this gap.

6.0 THREATS TO BIODIVERSITY IN GEORGIA

6.1 Background

The country of Georgia has had a tumultuous history, extending even into modern days, with a war with neighboring Russia breaking out, but quickly resolved in August, 2008.

Relations with Russia have always been problematic, but from an economic and biodiversity perspective, the natural resources were well protected under Russian rule, and the economy of Georgia thrived, mainly due to the export of agricultural products to Russia. Following Georgia's independence in 1991, poverty increased rapidly, markets disappeared, infrastructure collapsed, demand for natural resources increased and biodiversity suffered as well. The threats to Georgia's biodiversity intensified in these early post-Soviet days, and some lasting effects on biodiversity, such as the decline in agricultural biodiversity and the decline in populations of large ungulates like Caucasian turs (*Capra spp*) are still evident.

In the past two decades, the economic and political situation has calmed down a bit, and biodiversity is making a comeback. International conservation efforts by multilateral donors and NGOs have drawn attention to Georgia and its neighboring countries of Armenia and Azerbaijan, the Southern Caucasus ecoregion, and have helped target gaps that are present in Georgia's current protected area system. A primary focus of this work has been targeted at protected areas, with a goal that has almost been reached of preserving 20% of Georgia's land under various IUCN levels of protection by 2010. Despite this success, there is an underpinning of direct threats to biodiversity remaining today.

6.2 Root causes of biodiversity threats

A. Reliance of poverty-stricken Georgians on the often unsustainable use of biodiversity to support their families

Georgia is the poorest country in the Caucasus region. According to UN statistics, in 2008, 50 to 55% of the people in Georgia live below the poverty level, compared to only 30 to 40% of people in Armenia and Azerbaijan. The economic collapse following the Soviet reign left many people poorer than before. With no Soviet market in which to sell their fruits, wines, and crops, many rural Georgians faced poverty for the first time in their lives. In the wine country of Georgia, for instance, many of the once-thriving vineyards have been abandoned or replaced with maize and other crops for local consumption instead. In rural areas, poverty has drawn more people than ever to the forests to collect fuel wood, fruits, mushrooms and other resources and in many places around protected areas, buffer zones and traditional use areas are managed with this use in mind. But hunting of birds and fishing is more problematic and the unsustainable use of these resources and the harvesting of rare and endemic animals continue as a result of poverty.

B. Lack of political will to promote and support biodiversity and natural resources conservation

The GoG shows little concern or focus on environmental issues as a whole and even less on biodiversity related matters. The MoE is one of the weaker ministries in both funding and prestige, and within it, the section concerned with biodiversity is only a low budgeted "Division" (Biodiversity Protection Service) and not a "Department", let alone a full-fledged "Agency". The APA has a bigger budget and more status, largely due to donor input and the concept that ecotourism from park visitors is another channel for economic development, a major focus of the GoG. Much of the work of this Agency is in the establishment of tourism infrastructure and not on the management of the biodiversity and natural resources. Likewise, the MoE Forestry Department is primarily concerned with the awarding of private concessions for logging, and has few resources to assess the health, or even the extent, of the forests involved. EIA requirements that were

strong up to 2005, have since then been relaxed by government in order to further economic development and attract foreign investments in development projects.

C. Lack of good data to effectively manage natural resources and biodiversity

No biodiversity information management system exists. At all stages of investigation for this biodiversity analysis, it was evident that even the basic facts needed to effectively manage biodiversity are nonexistent here. For instance, even the MoE Forestry Department does not know what forests they manage, whether they cover 40% of Georgia—a number estimated back under the days of Soviet rule—or much more, or much less. They use this 40% number anyway, without any ground-truthing. The Deputy Chairman of the Forest Department said that they could not afford even to purchase high level satellite imagery, readily available, that could solve this dilemma. As to the state of the forests, the diversity of tree species within them, their age, health, etc.--is virtually unstudied. Similarly, there is no data on fish populations and migratory bird populations on which to effectively base harvesting quotas or seasonal limits. There is also a lack of enforcement of laws that do exist, and many hunting and fishing traditions continue on virtually unrestricted. Although there is a general notion of which species are found in which protected areas, there are very few studies to assess numbers, biological requirements or ecological concerns. Outside of protected areas, the knowledge about plant and animal species is further limited with little information on the distribution, health, or even the occurrence of many species throughout the country.

D. Lack of public awareness and understanding of the value of biodiversity and the benefits of conserving natural resources

There is little media attention to conservation and biodiversity, although this may be changing a bit with new awareness campaigns being funded by donors. At this stage, most Georgians happily toss their trash into pristine woods and out of their cars without any concerns. Some call the colorful plastic bags that are everywhere, present in tree branches and littering the ground, the "flowers of Georgia." Recycling is unheard of here, although there are efforts now beginning to address this. At the farm level, agricultural diversity is being lost, as farmers seek new and "better" seed stock, at the loss of native stocks adapted better to the climate and conditions here, but few farmers are aware of these issues.

Biodiversity and natural resource conservation is a new subject area for many Georgians. Few school curricula incorporate these concerns at any grade level, and fewer still non-formal nature clubs exist to fill this gap. Television in Georgia is the primary media through which people obtain their information. Although international television channels like CNN and BBC televise many nature programs, not everyone has access to cable and satellite television. Local Georgian television channels may broadcast international nature programs produced elsewhere about other countries, but few programs help make Georgians aware of the importance of wildlife and natural resources conservation to their own lives.

6.3 Direct threats to biodiversity

Georgia, as part of the Southern Caucasus Ecoregion, is a globally recognized biodiversity hotspot, an area where there is exceptionally high numbers of endemic and rare species that are threatened by environmental degradation, and as such, it has received considerable international conservation attention. In a process led by the WWF and including technical assistance and funding from other multilateral and regional NGOs, a series of stakeholder workshops involving more than 200 scientists, conservationists and stakeholders were held throughout the region. Georgia, with 36 biologists participating, had a large role in the resulting recommendations. In 2006, the results of these meetings were published in "An Ecoregional Conservation Plan for the Caucasus" forming the framework for conservation activities in the region. In these workshops, the collected experts agreed that the following were the major direct threats to biodiversity in the Southern Caucasus Ecoregion, all threats that are evident in varying degrees specifically in Georgia as well.

- Illegal logging, fuel wood harvesting, and the timber trade
- Overgrazing
- Poaching and the illegal wildlife trade
- Over-fishing
- Infrastructure development
- Pollution of rivers wetlands and seas

In addition, problems more specific to Georgia, and in some cases even more severe threats to Georgia's biodiversity that have come to light in this assessment are listed here:

- Changing agricultural practices
- Invasive exotic species

These various threats are analyzed and listed in order of priority as viewed by this assessment team.

1. Poaching and the illegal wildlife trade

Unsustainable hunting of bird populations is a problem in areas of Georgia where migratory waterfowl gather in the winter. Although hunting licenses are required, few people bother to obtain them and the hunting laws are difficult to enforce. Red listed species like Caucasian grouse are also hunted illegally. Large migratory hawks and eagles are shot to provide food for captive sparrow hawks that are collected from the wild and used to hunt quail. This falconry tradition is long standing around the Black Sea coast, including Kolkheti National Park. The sparrow hawks themselves are released after a season of hunting, but the raptors killed to provide meat for them are suffering losses. Endangered turs live in subalpine zones, and are hunted, illegally, by those with the wherewithal to trophy hunt. Reportedly such hunting often occurs by those who have access to helicopters in areas where it is difficult for rangers on horseback or foot to patrol. Another wildlife issue visible in Georgia is the taking and keeping of bear cubs (Ursus arctos) as attractions for local restaurants and petrol stations. Generally these cubs were orphaned due to hunting, then hand raised, only to spend their lives in small inadequate cages. Since no captive facility exists in the country to provide better living quarters for these animals, or for any other illegally kept animals either, law enforcement is ignored.

2. Pollution of rivers, wetlands and the Black Sea

In the alpine and subalpine zones, above the towns, the water is pure, drinkable and a delight and water from Artesian wells flow freely across the landscape. But in Georgia much of the municipal and agricultural wastes, including human sewage, go directly into the rivers and then to the Black Sea or via the Mingechevari Reservoir, which acts as a settlement area for pollutants, then on through Azerbaijan on to the Caspian Sea. According to conversations with WB sanitation consultants in Georgia, no functioning municipal water treatment plants currently exist. Rivers running through towns are invariably polluted. Waste from Georgia's few industries and sediments from gravel pits also contribute to river pollution. Gold mining operations at Bolnisi, manganese mines at Chiatura and other mines also add significant heavy metal contaminants. A number of more pollution-tolerant species of fish still live in lowland reaches of rivers and people catch them to eat, but at their own risk. Various sturgeon species from the Black Sea, which must travel up freshwater rivers to spawn are now only found in the relatively unpolluted Rioni River—the other streams once frequented by these fish are now too polluted. The Black Sea itself is polluted by agricultural, municipal and industrial wastes from surrounding countries, including Georgia.

3. Illegal logging, fuel wood harvesting and the timber trade

Georgia is a country endowed with forests and proud of them. Forests in Georgia are fully owned by the state. There are no private forests in Georgia - only long-term licenses are issued for timber production and for hunting farms. In both cases, the license holder should submit the management plan to the state and operations can start only after its approval. Conversion of forests to agricultural uses is not a problem. What is a threat to biodiversity is the selective harvest of trees on large forest areas given out as concessions to private companies without adequate knowledge of what resources are being harvested. There is no certification process for timber in Georgia. Trees leave the country on trucks that are not adequately inspected at border crossings, with the origin of the trees unknown. There is also no available data on the extent of illegal logging operations, although during the course of this evaluation one government official was arrested for illegal logging, among other charges. Without adequate monitoring and data, there is no real way to tell the extent of this threat to forests and the biodiversity that relies upon them. Fuel wood harvesting also occurs in areas around communities. In a land so rich in forests, with the human population diminishing rather than growing, this is not a major problem. Likewise, collection of mushrooms, fruits, nuts, and other non-timber forest products for local use is not a serious threat. The bulbs of some threatened wild plant species are collected and traded illegally in the international market for medicinal and horticultural uses, posing heightened threats to these species.

4. Over-fishing

Over-fishing is no doubt a threat in Georgia, but due to lack of data, the extent of this threat is totally unknown. Little conservation attention is given to fish and other aquatic resources in this country, and harvests are not monitored effectively. Endangered sturgeon are caught and seen around the coast in fish markets along the side of the road and on restaurant menus. A common practice in Georgia is electro-shocking and poisoning streams and other waterbodies to harvest fish. No good data is available on the extent of this problem, but a number of people report its occurrence. The status of fish populations and the threats these populations face are unknown.

5. Exotic species

The importation of exotic fish species over the past decades for cultivation in natural and artificial ponds has threatened the diversity and integrity of native fish species. Dating from Soviet times, when non-native fish were introduced into fish farms and natural water bodies, most inland lakes in Georgia have lost most of their native fish species. In the Black Sea, the invasive jellyfish species Mnemiopsis leidyi has also become widely established leading to a decline in plankton and fish larvae. As is true in most of the world, non-native plants are probably threatening natural ecosystems in some natural areas, but little data exists on this problem in Georgia.

6. Overgrazing

Although Georgia is heavily forested there are of arid lands and subalpine areas that are used for grazing by herds of sheep and goats that are moved from area to area by shepherds as the seasons change. In some cases this grazing land coincides with the grazing habitats of turs (Capra spp.), Bezoar goat (Capra aegagrus) and other rare, endangered or endemic ungulates in Georgia. Efforts are being made to work with shepherds to delineate zones where they can graze their livestock and areas to be dedicated to wild ungulates, but there are many areas in the country where this overlap is still a problem for native species.

7. Infrastructure development

Aquatic biodiversity in Georgia may be threatened by the existing network of hydroelectric plants and their planned expansions that divert the flow of rivers and streams, change the characteristics of the substrate and

block the access to spawning routes for native fish species. Hydroelectric projects can be designed with these issues in mind, by including fish ladders and the like, but it is unclear the extent to which this is implemented in Georgia.

Terrestrial infrastructure is not a major threat to Georgia's biodiversity. Unlike the case in many countries, the problem with Georgia's infrastructure is in the decaying status of old structures and not the building of more of them. When the Soviets left Georgia, they left behind oil and gas pipelines and pumps and industrial buildings, many of which the Georgians were unable to maintain. These crumbling buildings and structures are visible everywhere, but aside from some pollution concerns, they do not present an overall threat to the country's biodiversity. Environmental organizations in Georgia, Azerbaijan and Turkey have had concerns about new pipelines being installed by British Petroleum Georgia (Baku-Tbilisi-Ceihan Oil Pipeline and South Caucasus Gas Pipeline) but monitoring of ecological impact of this project shows no direct adverse effects to biodiversity and much of the damaged habitat is being rehabilitated. In the cities, where people are moving en masse, new buildings for housing and hotels are still arising, but these are being built on already degraded land. The issue of terrestrial infrastructure development or disintegration is not really a major threat to Georgia's biodiversity now, but planned projects, particularly along the Black Sea coast may cause serious problems in the future, especially in light of the weakened national EIA requirements.

8. Changing agricultural practices

Georgia is one of the hotspots of agricultural diversity in the world, and thought to be the origin of many species, subspecies and stocks of many different fruit, vegetable and grain varieties. Instead of using native stocks, more "modern" seeds, some genetically engineered, are being imported into the country for planting. Along with this, more and more fields are becoming fallow as people move to the cities, and remaining native agricultural varieties are being lost. Research collections and seed banks in Georgia and the region do not have the capacity or resources to save these stocks

7.0 ACTIONS NECESSARY TO CONSERVE BIODIVERSITY

7.1 Introduction

The previous chapter describes the major root causes and the direct threats to biodiversity and natural resources in Georgia in the opinion of this assessment team. Root causes are labeled A to D in no particular order of priority. All of these root causes are serious, requiring economic, social and political solutions far beyond the scope of biodiversity conservation activities alone. A few biodiversity-related actions are listed here that help address specifics.

In addition, eight particular direct threats have been singled out for attention. These are labeled 1 to 8 in order of priority as determined by the team. These letters and numbers are included in the following list of actions necessary to highlight the problems these are addressing. Each threat, of course, needs to be addressed in a number of different ways. Illustrative actions, only, are outlined here.

These actions can jointly be addressed by government entities, NGOs the private sector and donors like USAID. A number of these issues are already on the screen and being partially addressed, but more work is needed for all of them in order to most effectively conserve and preserve the biodiversity of Georgia. Each of the Actions Necessary below describes what is being done, and what is still needed.

Particular actions necessary and issues relevant to USAID's Country Assistance Strategy are provided in a separate document.

7.2 Recommendations Addressing Root Causes

I. More community-based programs are needed around PAs and in fragile landscapes to provide the rural poor with more income-making opportunities (Root Cause A: Poverty).

Currently Addressed Various NGOs, with donor support, are beginning to engage communities in ways that benefit these communities and reduce their negative pressures on protected resources. Notably, the new Mtirala National Park in western Georgia, under the guidance of WWF, has included all of the families living in the village inside the park in money-making ventures including tourist guiding, preparing meals, etc. IUCN supports establishment of PA Friends Associations at pilot protected areas.

Needs Further Attention Progress is being made in involving communities in protected areas, and providing employment opportunities and access to natural products in traditional use zones around the parks but more pilot projects are needed. Some groups of stakeholders are largely absent. For instance, increased efforts are needed to work with shepherds that regularly move their livestock through fragile grazing habitats of the remaining endangered tur species. Options need to be provided for these herders that provide sustenance for their sheep and goats without depleting wild grazing lands in fragile areas.

II. A new National Biodiversity Strategy and Action Plan (NBSAP) needs to be developed and approved by the GoG and used in policy making and on the ground activities (Root Cause B: Political Will).

Currently Addressed Although a National Biodiversity Strategy and Action Plan for Georgia was developed over a few years with ample stakeholder input, and published in 2005, this document has been rejected by successive governments, including Ministers of the Environment and discarded as useless.

Needs Further Attention The GoG needs to work with NGOs, the private sector, and donors to develop and implement a NBSAP which can guide biodiversity conservation programs and ensure that biodiversity considerations are integrated in all government plans.

III. The EIA process in Georgia needs an overhaul and implementation needs to be strengthened and enforced (Root Cause B: Political Will).

Currently Addressed The Arrhus Centre Georgia, in 2008, conducted a study of the EIA process in Georgia, and found it lacking in a number of key areas that impact its utility and its credibility (Annex M).

Needs Further Attention Recommendations from the Aarhus Report, including the need for a post-decision making control and monitoring system, the establishment of selection criteria for consulting firms and the independence of ecological data collection from the development side, need to be implemented.

IV. Red List legislation in Georgia needs to be improved to address the following issues: listing and de-listing aspects, necessity of development, approval and implementation of species action plans for listed species (Root Cause C: Lack of Data).

Currently Addressed The Georgia Red List was established in 2007 using international criteria for species assessments, threat categories and listing but nothing further has happened.

Needs Further Attention Legal revisions are required to increase national efforts for recovery of endangered and threatened species (Red Listed Species). Efforts are needed to build awareness of the need for species action plans at the highest government levels. Plants need to receive more focus in the listing process. The policy framework needs to be amended to include such plans. Support from donors for the development of these plans will be needed as well. Individual species of special concern, both within and outside of protected areas need to be studied to determine their ecological needs and specific threats, and these analyses need to be incorporated into gap analyses and government action plans for these species.

V. A Gap Analysis of protected areas needs to be conducted by the government in association with NGOs, universities and other specialists to ensure effective coverage and management for biodiversity (Root Cause C: Lack of data).

Currently Addressed The Ecoregional Conservation Plan for the Caucasus was in effect a gap analysis of the ecosystems and habitats in the entire region, involving scores of regional and international specialists.

Needs Further Attention Efforts are needed to ensure that the protected area system includes areas that have been found to have regional importance to biodiversity conservation. A similar exercise focusing on the protected areas and landscapes in Georgia alone is needed as well as management plans for the areas already protected.

VI. A National Biodiversity Monitoring and Information Management System needs to be established and utilized to manage species, ecosystems and genetic resources (Root Cause C: Lack of Data).

Currently Addressed Although people in various MoE branches recognize the lack of data, they have no power or resources to collect data. The Biodiversity Protection Service of MoE has begun discussions on the National Biodiversity Monitoring and Information Management System and has selected a

number of biodiversity indicators to be used. GTZ is committed to help with this process, but there is still a lot of work to be done.

Needs Further Attention Although progress is being made at the highest levels, more grants to NGOs, university scientists and scholarships to students to study and collect data on the species and ecosystems of Georgia are needed. More support to the MoE to collect, manage and properly utilize the data would greatly expand these efforts. Among other uses the data should be used to identify gaps in the protected area system. Data on forests should be used to value forest concessions and monitor the impact of timber harvesting.

VII. Public awareness and formal and non-formal education programs are needed to boost environmental concern among Georgians at all levels (Root Cause D: Lack of Public Awareness).

Currently Addressed IUCN/Caucasus, WWF and various other conservation organizations are working on informal education programs in and around protected areas. The Ministry of Education and Science of Georgia has made significant efforts to include biodiversity topics in National curricula. The GCCW also produces and distributes science textbooks that include biodiversity conservation aspects that are approved by the Ministry of Education and used in many schools around the country.

Needs Further Attention More educational materials with conservation concerns and more training and awareness building campaigns are needed in all aspects of public and non-formal education. Georgian television stations, in particular, need to acquire more Georgia- specific nature programming. Training and supporting materials for school teachers are required in order for them to teach the new material.

7.3 Recommendations Addressing Direct Threats

1. Wildlife management laws need to be strengthened and enforced (Direct Threat 1: Poaching and the illegal wildlife trade).

Currently Addressed Although hunting regulations exist, they are often not enforced. Local people continue to hunt without purchasing licenses, even though these are now easily available and hunting regulations are largely ignored. Few law enforcement personnel are situated in the field. People with connections and the use of helicopters also poach threatened turs and other ungulates for sport. Also at present a number of restaurants hold illegal bears and other wildlife species, and although these are highly visible there is no captive facility to place them in so the problem is ignored. At present no certified *ex situ* animal facility exists in Georgia, although current plans are underway to move the Tbilisi Zoo from the center of the city to a larger parcel on the outskirts. It is unclear what native species will be focused on, if any, in this zoo.

Needs Further Attention Awareness raising campaigns are needed throughout Georgia to promote a wider concern for the conservation of native species. Efforts to show people the negative impact of illegal hunting on Georgian species are especially needed. Laws regarding wildlife conservation still need better enforcement. Efforts should be supported to bring the new Tbilisi Zoo up to certification levels by the World Association of Zoos. Facilities within this zoo, or elsewhere in Georgia, need to be developed to humanely house, study and reproduce native species for exchange with other zoo programs elsewhere for the betterment of these species.

2. **Water quality standards need strengthening and compliance needs to be enforced (Direct Threat 2: Water pollution).**

   Currently Addressed Water pollution is a major problem and no current municipal wastewater treatment facilities existing in the country. The WB is just beginning to address water quality concerns. The WB has begun working to improve sanitation and water quality measures in both urban and rural Georgia and the German Bank for Reconstruction and Development (KfW) and other donors are also working in this area, but much more work is needed.

   Needs Further Attention The water quality of lakes, rivers and streams that provide habitat for threatened and/or commercial fish and other aquatic biodiversity needs to be investigated and mitigation measures put in place.

3. **More information is needed to effectively allocate and manage logging concessions in Georgia and to find affordable replacement fuels for local populations (Direct Threat 3: Illegal logging and the timber trade).**

   Currently Addressed The MoE's Department of Forestry has recently modified the requirements that timber concessionaires must follow in order to acquire logging rights in state-owned forests with more of a monitoring burden placed on them. There is also a more transparent process of bidding on parcels than previously.

   Needs Further Attention The Department of Forestry requires more resources and capacity to effectively monitor the extent and health of the forests under their jurisdiction, which include most of the forests in the country. A forest inventory is the first step that needs to be taken in Georgia, and forest management plans need to be prepared by the Department of Forestry before concessions are approved. Work also needs to be undertaken to provide other affordable fuel sources for local populations to limit their reliance upon fuel wood collection.

4. **Aquatic biodiversity and fisheries issues and aquatic ecosystems in general need more attention in Georgia in order to be more effectively managed (Direct Threat 4: Overfishing).**

   Currently Addressed Georgia has a small fisheries institute (Institute of Marine Sciences) in Batumi, but with few resources to address major fisheries concerns in the country. Aquatic biodiversity concerns are rarely addressed in conservation documents in Georgia.

   Needs Further Attention More funding and resources need to be made available to fisheries scientists in Georgia in order to obtain data on the status and populations of commercial and/or threatened fish populations. Georgia also needs to formulate its policy and strategy on wetlands management. Attention should also be given to fish farming and the restoration of populations of native fish species now overrun by exotics. Enforcement and control is needed to stem destructive fishing practices.

5. **The extent, distribution and problems with exotic species of plants and animals need to be determined and efforts put in place to remove invasive plants from natural habitats and to restore native fish populations (Direct threat 5: Exotic species).**

   Currently Addressed Exotic species in Georgia have received little attention so far. In recent efforts by the Botanical Garden of Tbilisi, 368 exotic invasive plants have so far been identified in Georgia, but little information yet exists on the distribution and extent of the problems these species are causing in natural habitats, but no doubt their impacts on native species and wild habitats are significant. Introduced fish species are also a problem, as they outcompete with many native species in most water bodies in Georgia.

Needs Further Attention Intensive research projects need to be initiated in Georgia to address exotic species. Grants to university biologists and their students to undertake assessments of native and non-native aquatic and terrestrial species would be one way to further study this problem. Work needs to be undertaken to remove exotic invasive plants from protected areas and other natural landscapes. Native fish species need to be grown in fish nurseries and provided to people who wish to stock their ponds, instead of the exotic species that are now often provided.

6. **Efforts need to be made to provide alternative fodder for domestic sheep and goats that are regularly herded through fragile landscapes and protected areas where they directly compete with threatened ungulate species (Direct Threat 6—Overgrazing).**

   Currently Addressed Near Lagodehki Protected Area, areas just outside the PA have been delineated where herders are allowed to graze their animals without overlapping in the distribution of rare species. In other situations, an effort is being made to include herders in community based programs seeking cooperative solutions to conservation problems.

   Needs Further Attention More efforts are needed to engage herders in community based programs and to find alternative fodder for their animals, when other acceptable solutions are not available.

7. **Attention needs to be paid to biodiversity issues involving hydroelectric schemes, draining of wetlands and other human engineering programs in natural aquatic habitats (Direct threat 7: Infrastructure development).**

   Currently Addressed Fresh water is a major commodity in Georgia and the power it holds as it rushes down Georgia's mountains has long been harnessed by hydroelectric power schemes. Little or no attention has been given to the effects of dams and hydroelectric plants on native biodiversity. Similarly, the draining of wetlands for agricultural land, much of which has now gone fallow, has also taken its toll on aquatic species. No attention is yet focused in this area.

   Needs Further Attention Studies are needed on aquatic biodiversity and habitats when new hydroelectric schemes are developed, and retrofitting and habitat restoration may be needed in places where such plants already exist in order to protect native species. Fish ladders are important to the movements of spawning fish, but more attention is also needed for other problems that hydroelectric schemes cause in substrate and habitat of many aquatic species. Attention is also needed to restore degraded wetlands in some areas where agricultural needs have diminished to provide more habitats for native and migratory species.

8. **Agrobiodiversity needs to be a focus of conservation efforts (Direct Threat 8: Changing agricultural practices).**

   Currently Addressed The Plant Genetics Resources of the Caucasus Program has studied and catalogued many cultivars of agricultural crops in Georgia, but recognizes that many of these are not adequately preserved in seed banks, nurseries and rural farmland in the country.

   Needs Further Attention More support needs to be given to existing seed banks and research nurseries in Georgia and the region to avoid potential loss of many valuable crop cultivars that may one day have great importance to mankind. Agricultural programs that embrace modern techniques are necessary in Georgia but simultaneously, care should be taken to preserve native seeds and stocks for possible future needs as the climate and growing conditions change.

Annex A: Maps of Selected Biodiversity and Natural Features of Georgia

Exhibit 1: Protected Areas of Georgia (provided by the MoE)

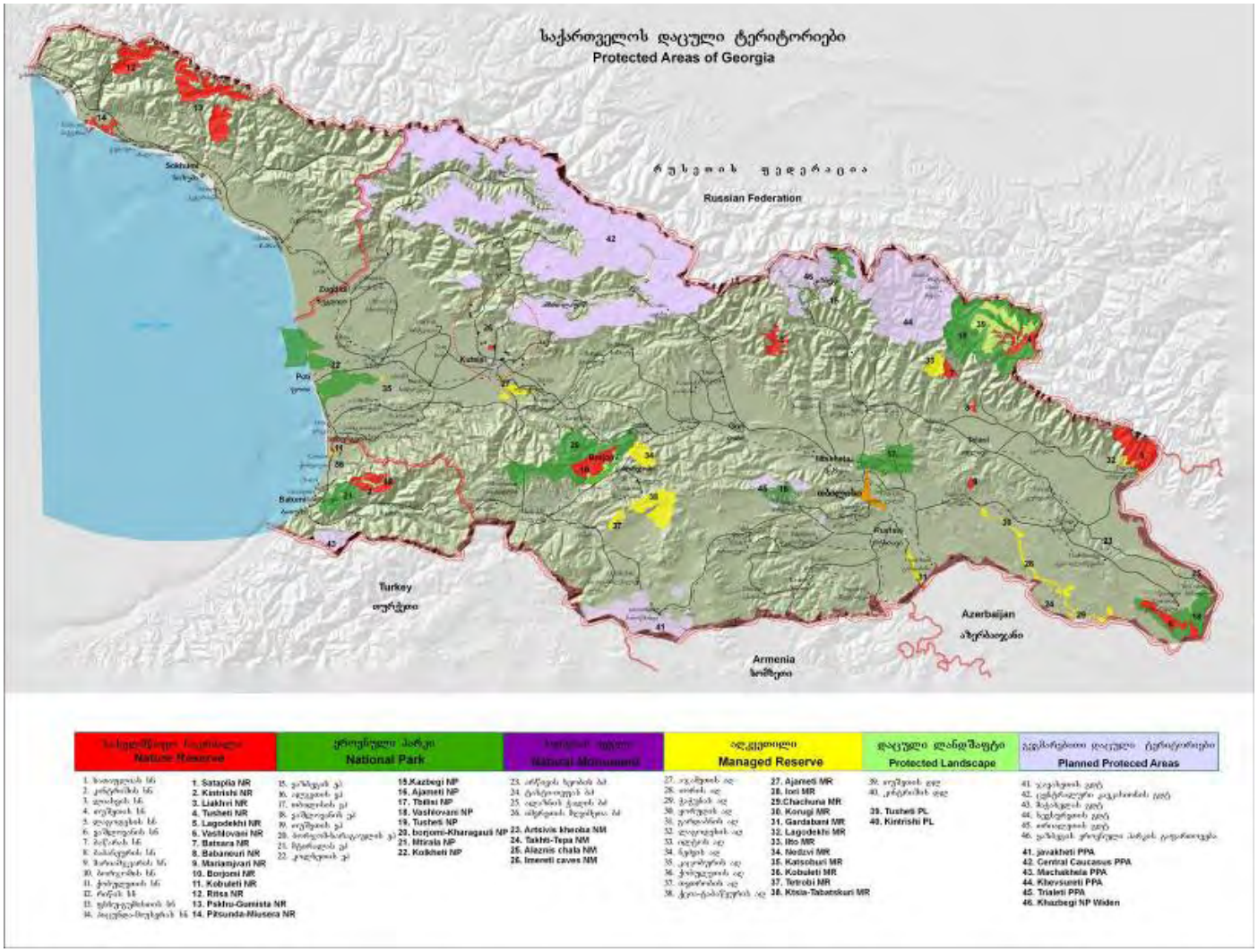


Exhibit 2: Map of Important Biodiversity Areas in Georgia (extracted from the Caucasus Ecoregional Conservation Plan).

Conservation Corridors(dark green): 9 Western Greater Caucasus; 10 Terberdinsky Strict Nature Reserve; 11Svaneti-Rachi; 12 Svanti-Askhi; 14 Racha Central Caucasus; 15 Rioni-West Lesser Cacasus; 16 Trialeti-West Lesser Caucasus; 18 Trialeti-Manglesi; 19 Trialeti-Javakheti; 20 Manglisi Pambak Sevan; and 28 Alazani-Ganykh

Priority Conservation Areas (light green): 11 West Greater Caucasus; 12 Teberdinsky Strict Nature Reserve; 13 Svaneti; 14 Racha-Central Caucasus; 15 Khevi-Tusheti; 16 Lagodheki; 22 Jori-Mingechevir; 23 Alazan-Ganykh; 24 Kvernaki; 25 Askhi-Karst Massif; 26 Rioni; 27 Trialeti;; 28 Kura-Jandari; 51 Javakheti; 54 West Lesser Caucasus; and 55 Manglisi

Methodology of creation this map

Ecoregional Conservation Plan for the Caucasus was developed in 2006 as collaborative effort of several international organizations: WWf, Conservation International, BirdLife International, Critical Ecosystems Partnership Fund, MacArthur Foundation, KFW, Cenesta amd AHT International GMBH. In addition more than 140 experts from the six countries of the Caucasus region (Armenia, Azerbaijan, Georgia, Iran, Russia and Turkey) participated in the process representing scientific, governmental and non-governmental organizations.

Based on 9 stakeholder workshops, 4 priority biomes (Forest, Freshwater, Marine and High Mountain), 26 focal species, 56 Priority Conservation Areas and 60 important wildlife corridors were identified by the participants.

Focal species are selected based on biological, political and socioeconomic criteria. These are those which fall into in one or more of the following categories: keystone species, indicator species, umbrella species, flagship species, and vulnerable species.

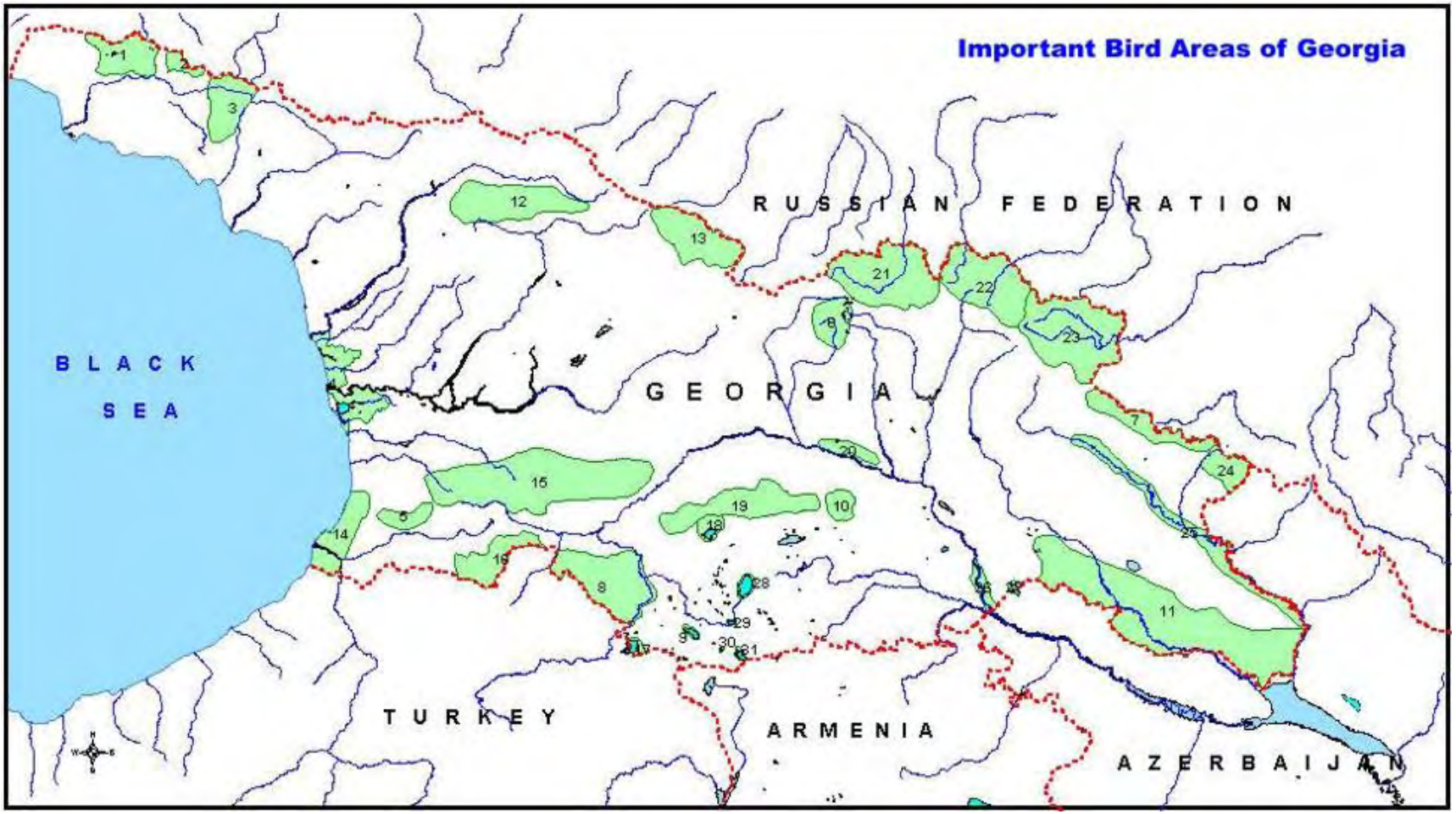
Selection of Important Taxon Areas: Experts designed maps of important taxon areas taking into account distribution and ranges of focal species selected for each of the countries. In total 260 important areas were identified (60 for plants, 29 for mammals, 121 for birds, 28 for amphibians and reptiles, and 22 for fish).

Selection of Priority Conservation Areas (PCAs): The important taxon areas were overlaid on a map and habitat representation evaluated. In addition, past, existing and potential threats to biodiversity were considered and 56 Priority Conservation Areas were selected.

GAP analyses of Protected Areas: Next, PCAs were mapped with the existing Protected Areas network to determine gaps in the system. In some cases, protected areas are not strategically placed from a biodiversity point of view or the specific protection category doesn't correspond to the actual conservation needs.

Delineation of important wildlife corridors: Large mammals, birds, fish and some other animals capable of migration need corridors for dispersal and to maintain viable populations. Therefore, to guarantee connectivity of the selected PCAs, 60 important wildlife corridors were identified by experts.

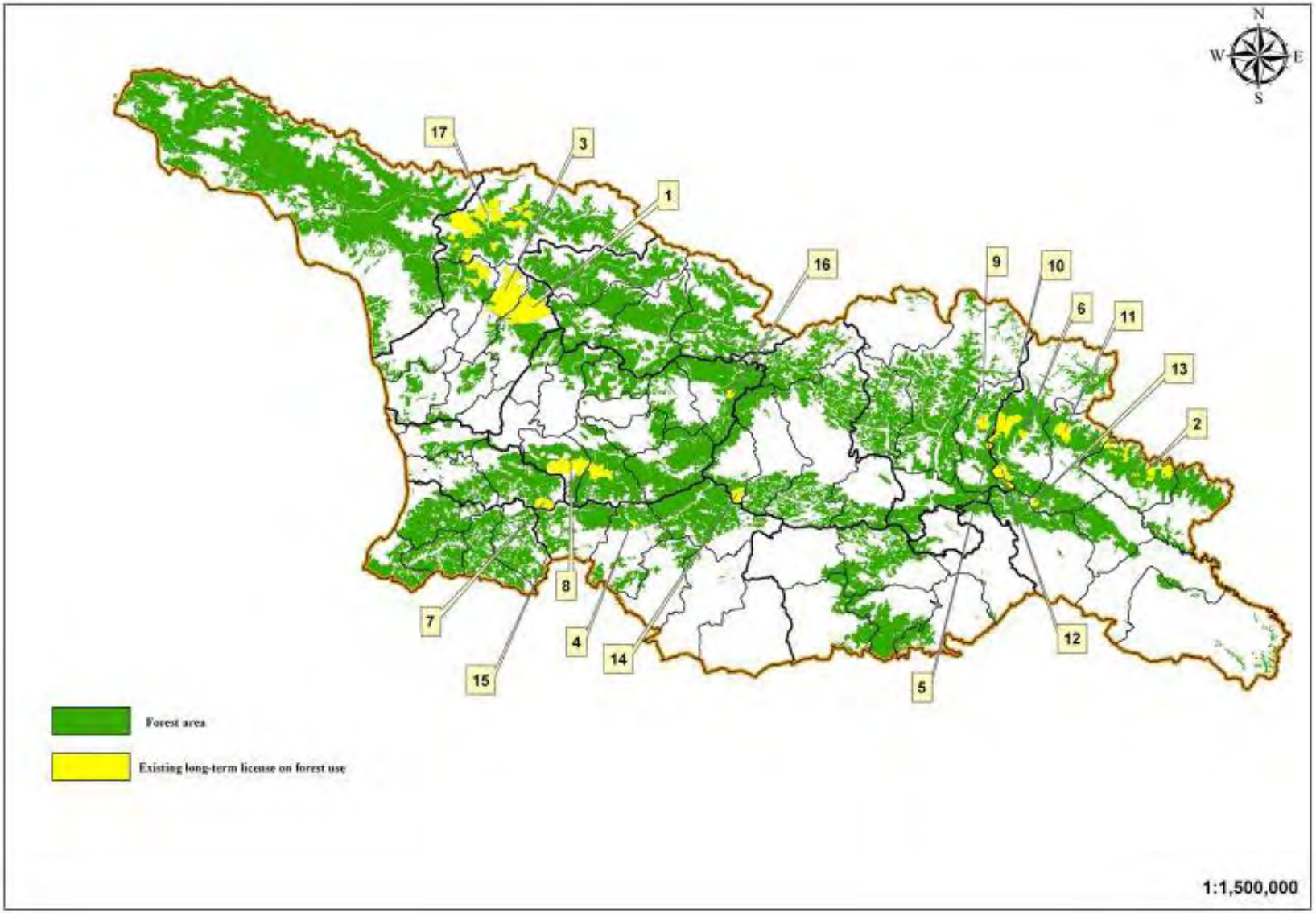
Exhibit 3: Important Bird Areas of Georgia (provided by GCCW/BirdLife Georgia)



Summary of Georgian IBAs

Code	International Name	Area (ha)
001	Ritsa	38,297
002	Pskhu	8,576
003	Gumista	40,032
004	Kolxeti	56,052
005	Kintrishi	15,726
006	Liakhvi	27,922
007	Eastern Caucasus (Kakhetian Caucasus)	37,370
008	Meskheti (incl. Erusheti)	82,828
009	Khanchali lake	2,580
010	Algeti	13,290
011	Iori Region	239,374
012	Svaneti	69,436
013	Racha	56,906
014	Batumi (Raptor Migration)	41,938
015	Adjara-Imereti Ridge	173,279
016	Shavsheti Ridge	38,253
017	Kartsaxi Lake	3,618
018	Tabatskuri lake (incl. surroundings)	9,991
019	Trialeti Ridge	66,848
020	Kvernaki Ridge	12,969
021	Kazbegi (Tergi Watershed)	94,889
022	Khevsureti	81,272
023	Tusheti	112,100
024	Lagodekhi	22,879
025	Alazani Valley	64,311
026	Lower Kura Valley	10,933
027	Jandari Lake	2,229
028	Pharavani Lake	5,830
029	Sagamo Lake	857
030	Bogdasheni Lake	397
031	Madatapha Lake	1,978
Total		**1,432,961**

Exhibit 4: Forests and licensed concessions in Georgia (provided by the Department of Forestry, MoE of Georgia)



Forestry Licenses issued by the Government of Georgia during 2006-2009

#	Region	Forest District	Total area, ha	License holder
2006 Year				
1	Samegrelo Zemo Svaneti	Kurzu, Taleri	4,920	L.T.D "Georgian Forest"
2007 Year				
2	Khakheti	Kvareli	10,052	L.T.D "Georgian Forest Industry Company"
3	Samegrelo Zemo Svaneti	Tsalendjikha, Chkhorotku	37,860	L.T.D "Georgia Wood and Industrial Development"
2008 Year				
4	Samtskhe-Javakxeti	Axaltsikxe	689	I/industrialist "Vefkhia Shubitidze"
5	Mtkhexeta Mtianeti	Tianeti	868	L.T.D ". Hauz+"
6	Khaxeti	Axmeta	1,561	L.T.D, "Imedi"
7	Guria	Chokhatauri	8,674	L.T.D "Guria group"
8	Imereti	Bagdati, Vani	18,482	L.T.D "Georgia Wood and Industrial Development"
9	Mtkhexeta Mtianeti	Tianeti	7,706	L.T.D "Georgia Wood and Industrial Development"
10	Khaxeti	Akxmeta	9,484	L.T.D "Georgia Wood and Industrial Development"
11	Khaxeti	Telavi	4,807	L.T.D "Georgia Wood and Industrial Development"
12	Khaxeti	Axmeta	5,945	L.T.D "Georgia Wood and Industrial Development"
2009 Year				
13	Khaxeti	Telavi	1,127	L.T.D "Qome"
14	Shida-qartli	Xashuri	5,681	I/industrialist "raguli tabatadze"
15	Samcxe-Javaxeti	adigeni	2,571	L.T.D "Tao"
16	Imereti	sachxere	963	L.T.D "International timber producing comopany"
17	Samegrelo Zemo Svaneti	xaiSi	30,112	perspective
Total			**151,502**	

Exhibit 5: Protective Forests and Reserve Territories of Georgia (provided by the WWF Caucasus Program Officer)

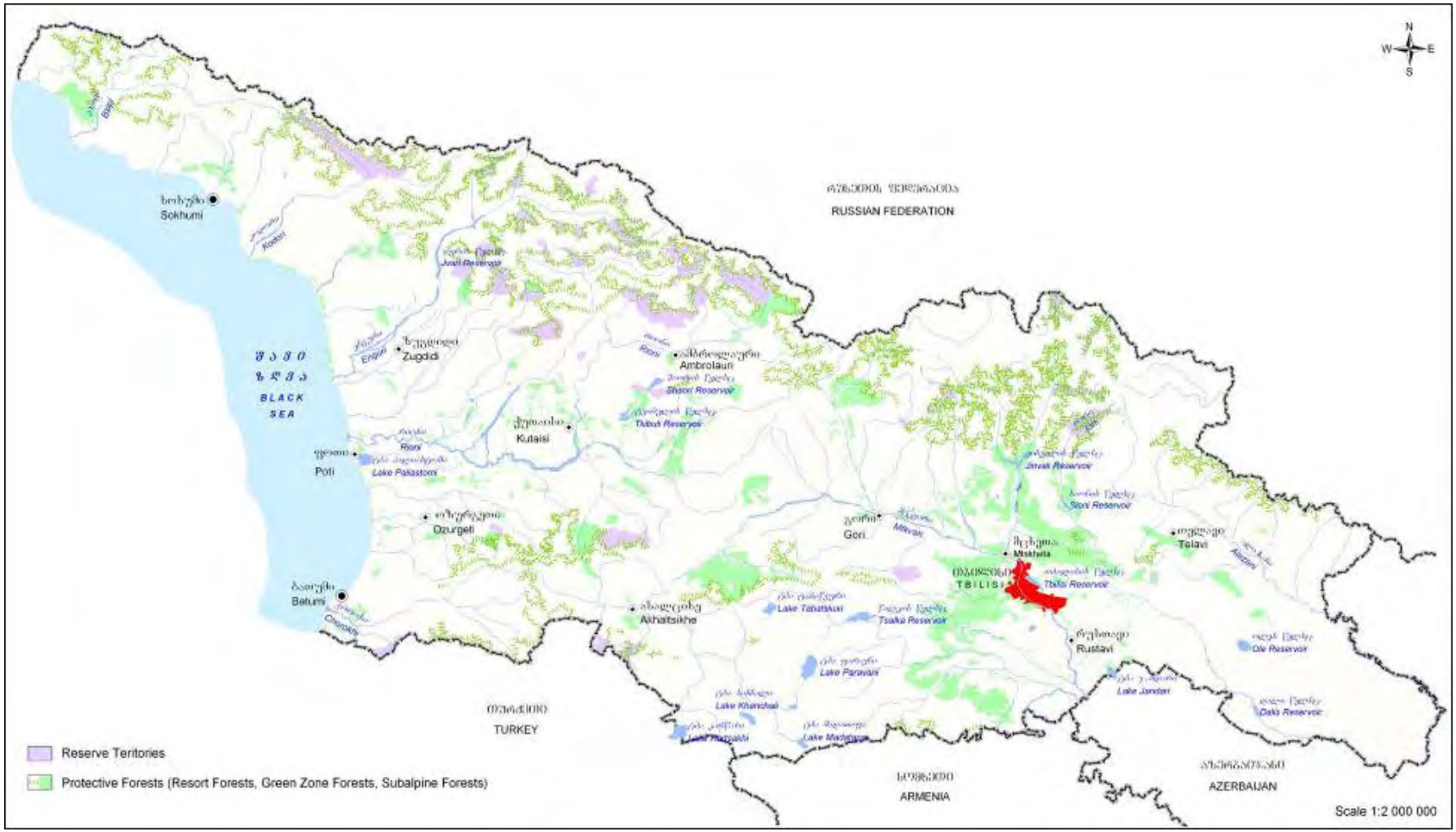


Exhibit 6: Sensitivity map of Fisheries resources (provided by CENN)

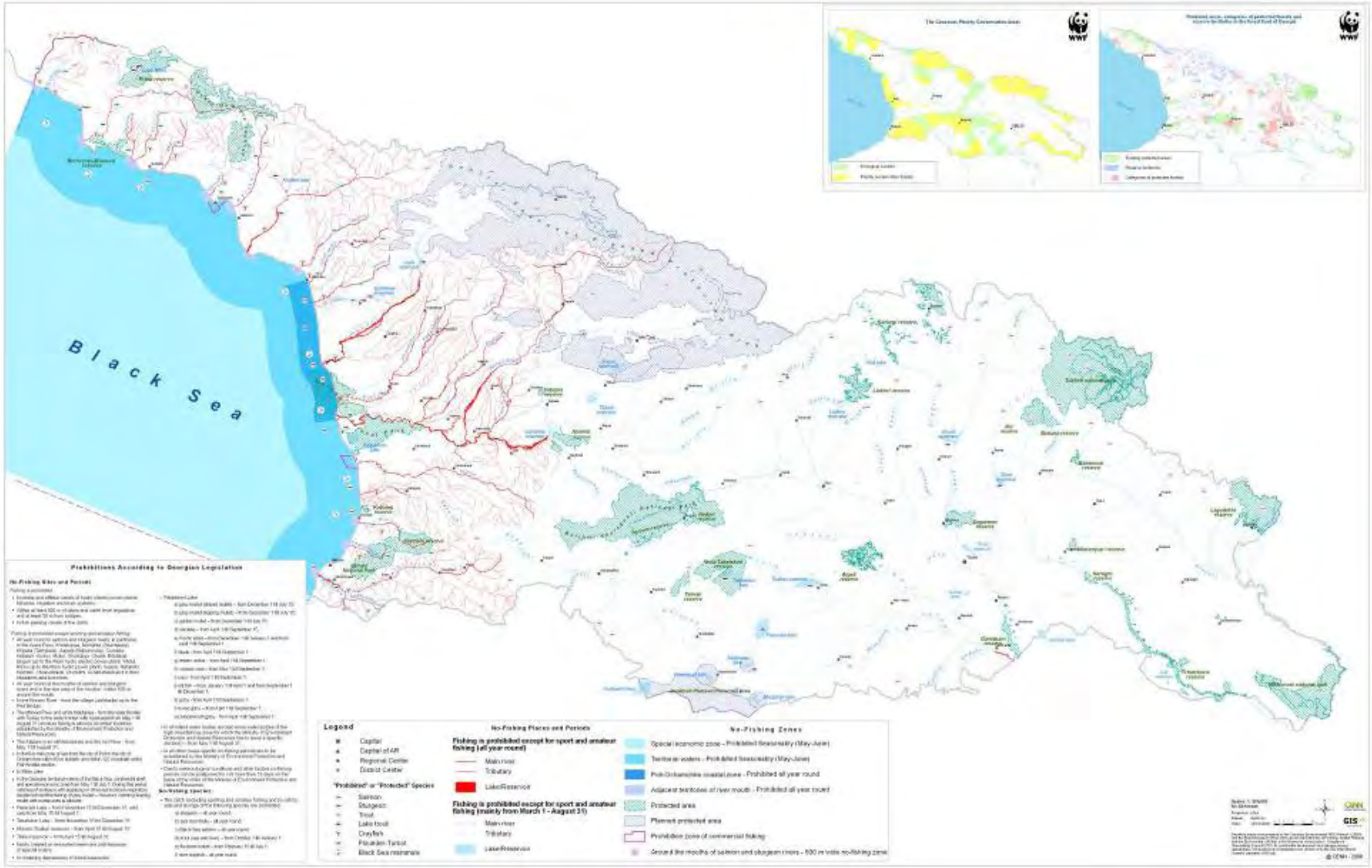


Exhibit 7: Bird Migration and stop-over places in Georgia

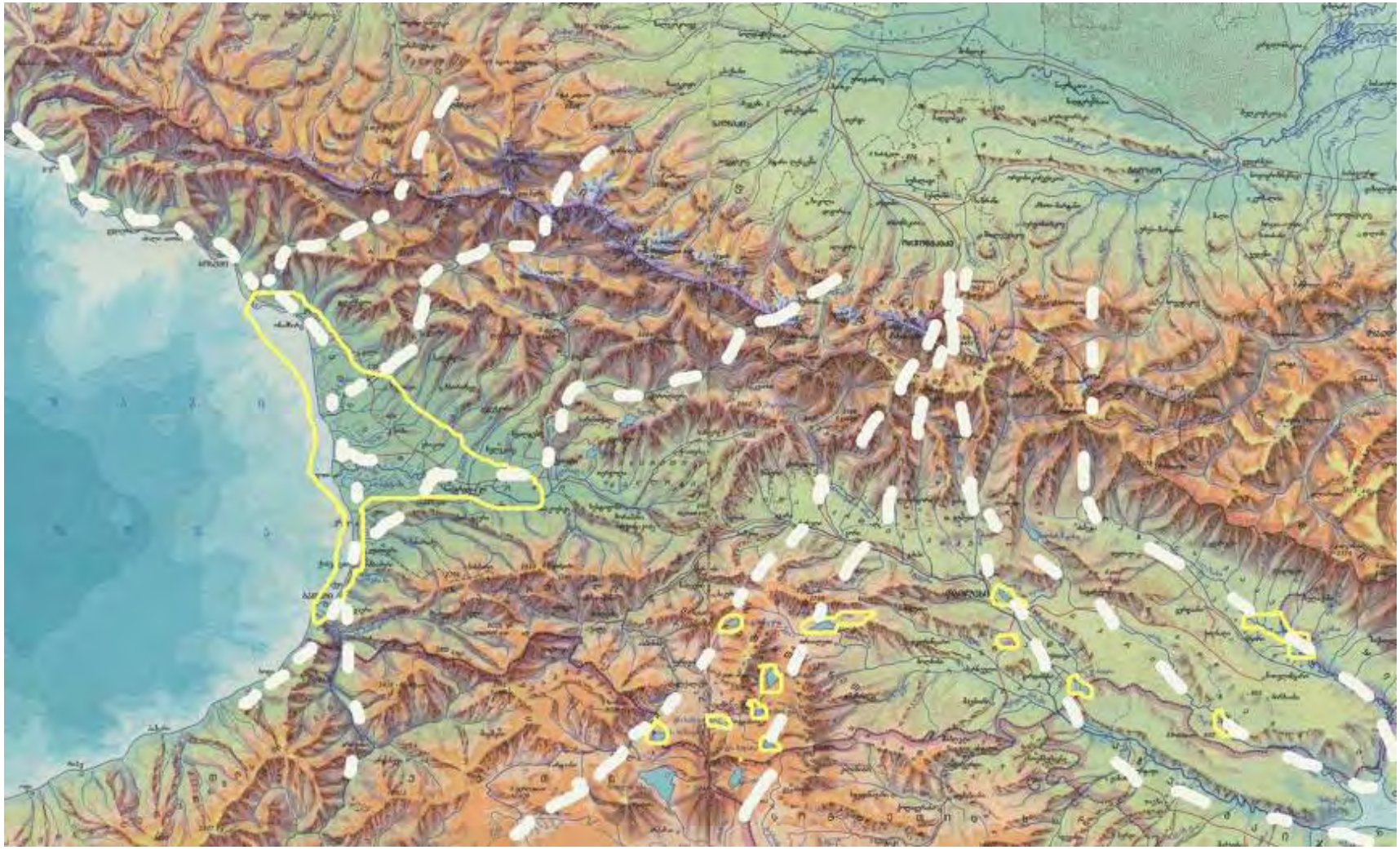
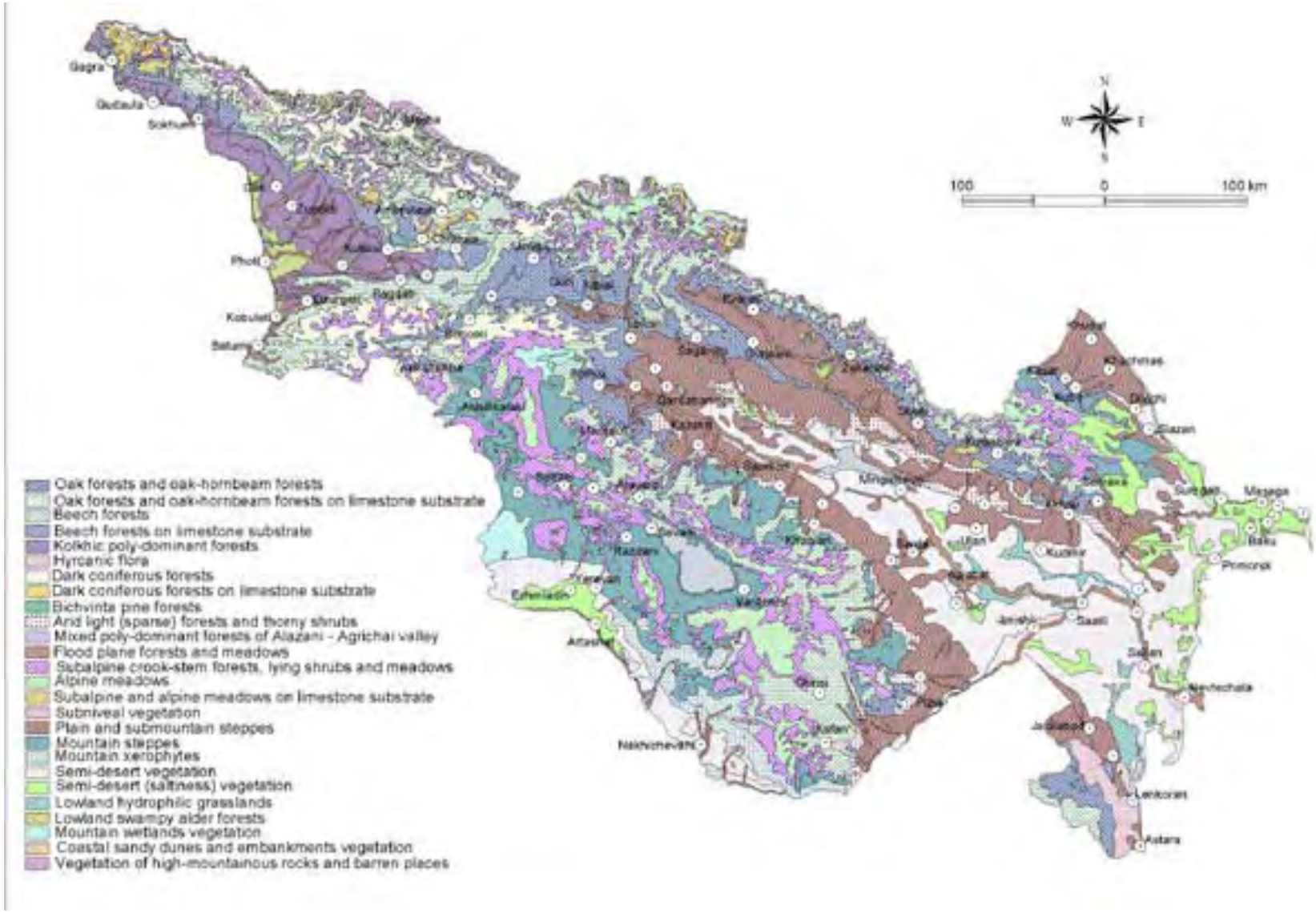


Exhibit 8: Flora of the South Caucasus



Annex B: IUCN Red List/Georgia

Critically Endangered, Endangered, Vulnerable, and Threatened category listings are given here. Many more of Near Threatened, Lower Risk, Data Deficient and Least Concern are not included. The full list for Georgia is found at this link: http://www.iucnredlist.org/search/link/4ae5df24-7cf9bede

***Scientific Name* Common Name, Status - : Remarks**

Acipenser gueldenstaedtii Russian Sturgeon, Status – Endangered, A2d ver 2.3: needs updating

Acipenser nudiventris Fringebarbel Sturgeon, Status - Endangered, A1acde+2d ver 2.3: needs updating

Acipenser persicus Persian Sturgeon, Status - Endangered, A2d ver 2.3: needs updating

Acipenser persicus Black Sea stock, Persian Sturgeon, Status – Endangered, A1ac ver 2.3: needs updating

Acipenser ruthenus Sterlet, Status – Vulnerable A1c+2d ver 2.3: needs updating

Acipenser stellatus Stellate Sturgeon, Status – Endangered, A2d ver 2.3: needs updating

Acipenser sturio Common Sturgeon, Status – Critically Endangered, A2d ver 2.3: needs updating

Alosa immaculata, Status – Vulnerable, B2ab(v) ver 3.1: Pop. trend: decreasing

Anguilla anguilla European Eel, Status – Critically Endangered, A2bd+4bd ver 3.1: Pop. trend: decreasing

Anser erythropus Lesser White-fronted Goose, Status – Vulnerable, A2bcd+3bcd+4bcd ver 3.1: Pop. trend: decreasing

Aquila clanga Greater Spotted Eagle, Status – Vulnerable, C2a(ii) ver 3.1: Pop. trend: decreasing

Aquila heliaca, Eastern Imperial Eagle, Status – Vulnerable, C2a(ii) ver 3.1: Pop. trend: decreasing

Branta ruficollis Red-breasted Goose, Status – Endangered, A2bcd+3bcd+4bcd ver 3.1: Pop. trend: decreasing

Bufo verrucosissimus Caucasian Toad, Status – Near Threatened, ver 3.1: Pop. trend: decreasing

Capra aegagrus Wild Goat, Status – Vulnerable, A2cd ver 3.1: Pop. trend: decreasing

Capra caucasica Western Tur, Status – Endangered, A2ad ver 3.1: Pop. trend: decreasing

Cerambyx cerdo Greater Capricorn Beetle, Status – Vulnerable, A1c+2c ver 2.3: needs updating

Cyprinus carpio Wild Common Carp, Status – Vulnerable, A2ce ver 3.1: Pop. trend: unknown

Darevskia alpina, Status – Vulnerable, B1ab(i,iii,v) ver 3.1: Pop. trend: decreasing

Darevskia clarkorum Clarks' Lizard, Status – Endangered, B1ab(i,iii) ver 3.1: Pop. trend: decreasing

Darevskia dryada Charnali Lizard, Status – Critically Endangered, B2ab(iii,v) ver 3.1: Pop. trend: decreasing

Delphinus delphis ssp. ponticus Short-beaked Common Dolphin, Status – Vulnerable, A2cde ver 3.1

Dolomedes plantarius Great Raft Spider, Status – Vulnerable, A1ace+2ce ver 2.3: needs updating

Epimyrma tamarae, Status – Vulnerable, D2 ver 2.3: needs updating

Equus hemionus Asiatic Wild Ass, Status – Endangered, A2abc+3bd ver 3.1: Pop. trend: decreasing

Falco naumanni Lesser Kestrel, Status – Vulnerable, A2bce+3bce+4bce ver 3.1: Pop. trend: decreasing

Gazella subgutturosa Goitered Gazelle, Status – Vulnerable, A2ad ver 3.1

Huso huso European Sturgeon, Status – Endangered, A2d ver 2.3: needs updating

Larus audouinii Audouin's Gull, Status – Near Threatened, ver 3.1: Pop. trend: decreasing

Luciobarbus capito Bulatmai Barbel, Status – Vulnerable, A2cd ver 3.1: Pop. trend: decreasing

Marmaronetta angustirostris Marbled Teal, Status – Vulnerable, A2cd+3cd+4cd ver 3.1: Pop. trend: decreasing

Mertensiella caucasica Caucasian Salamander, Status – Vulnerable, B2ab(ii,iii) ver 3.1: Pop. trend: decreasing

Monachus monachus Mediterranean Monk Seal, Status - Critically Endangered, A2abc; C2a(i); E ver 3.1: Pop. trend: decreasing

Mustela lutreola European Mink, Status – Endangered, A2ce ver 3.1: Pop. trend: decreasing

Natrix megalocephala Large-headed Water Snake, Status – Vulnerable, A2ce+4ce ver 3.1: Pop. trend: decreasing

Neophron percnopterus Egyptian Vulture, Status – Endangered, A2bcde+3bcde+4bcde ver 3.1: Pop. trend: decreasing

Onychogomphus assimilis Status – Vulnerable, A2ac+3c ver 3.1: Pop. trend: decreasing

Otis tarda Great Bustard, Status – Vulnerable, A2c+3c+4c ver 3.1: Pop. trend: decreasing

Oxyura leucocephala White-headed Duck, Status – Endangered, A2bcde+4bcde ver 3.1: Pop. trend: decreasing

Panthera pardus Leopard, Status – Near Threatened, ver 3.1: Pop. trend: decreasing

Parnassius apollo Apollo Butterfly, Status – Vulnerable, A1cde ver 2.3: needs updating

Pelecanus crispus Dalmatian Pelican, Status – Vulnerable, A2ce+3ce+4ce ver 3.1 : Pop. trend: decreasing

Phocoena phocoena ssp. relicta Black Sea Harbour Porpoise, Status – Endangered, A1d+4cde ver 3.1

Pinus brutia var. pityusa, Status – Vulnerable, A1c+2c ver 2.3

Quercus robur ssp. imeretina Status – Vulnerable, B1+2c ver 2.3

Rhinolophus mehelyi Mehely's Horseshoe Bat, Status – Vulnerable, A4c ver 3.1: Pop. trend: decreasing

Rosalia alpina Rosalia Longicorn, Status – Vulnerable, A1c ver 2.3: needs updating

Saga pedo Predatory Bush Cricket, Status – Vulnerable, B1+2bd ver 2.3: needs updating

Sicista caucasica Caucasian Birch Mouse, Status – Vulnerable, B2ab(iii) ver 3.1: Pop. trend: unknown

Sicista kazbegica Kazbeg Birch Mouse, Status – Endangered, B1ab(iii) ver 3.1: Pop. trend: unknown

Squalus acanthias Piked Dogfish, Status – Vulnerable, A2bd+3bd+4bd ver 3.1: Pop. trend: decreasing

Squatina squatina Angel Shark, Status – Critically Endangered, A2bcd+3d+4bcd ver 3.1: Pop. trend: decreasing

Strongylognathus rehbinderi Status – Vulnerable, D2 ver 2.3: needs updating

Testudo graeca Spur-thighed Tortoise, Status – Vulnerable, A1cd ver 2.3: needs updating

Testudo graeca ssp. nikolskii Status – Critically Endangered, A1abcde+2bcde ver 2.3: needs updating

Tursiops truncatus ssp. ponticus Black Sea Bottlenose Dolphin, Status – Endangered, A2cde ver 3.1: Pop. trend: unknown

Vipera darevskii Darevsky's Viper, Status – Critically Endangered, B1ab(ii,iii)+2ab(ii,iii) ver 3.1: Pop. trend: decreasing

Vipera dinniki Caucasus Subalpine Viper, Status – Vulnerable, B1ab(iii,v) ver 3.1: Pop. trend: decreasing

Vipera kaznakovi Caucasian Viper, Status – Endangered, B2ab(ii,iii,v) ver 3.1: Pop. trend: decreasing

Vormela peregusna European Marbled Polecat, Status – Vulnerable, A2c ver 3.1: Pop. trend: decreasing

Zerynthia caucasica Status – Vulnerable, A1ac, B1+2ac ver 2.3: Pop. trend: decreasing

Annex C: Georgian Red List

	Scientific Name	IUCN Global Status	Georgia Red List status
	VERTEBRATES		
	MAMMALS		
1	*Rhinolophus euryale*	VU	VU
2	*Rhinolophus mehelyi*	VU	VU
3	*Myotis bechsteinii*	VU	VU
4	*Barbastella barbastellus*	VU	VU
5	*Sciurus anomalus*	NT	VU
6	*Castor fiber*	NT	RE
7	*Sicista caucasica*	DD	VU
8	*Sicista kluchorica*	DD	VU
9	*Sicista kazbegica*	DD	VU
10	*Nannospalax nehringi*	*	VU
11	*Cricetulus migratorius*	NT	VU
12	*Mesocricetus brandti*	*	VU
13	*Prometheomys schaposchnikovi*	*	VU
14	*Clethrionomys glareolus ponticus*	*	EN
15	*Meriones tristrami*	*	VU
16	*Micromys minutus*	NT	VU
17	*Felis chaus*	*	VU
18	*Lynx lynx*	*	CR
19	*Panthera pardus*	CR	CR
20	*Panthera tigris*	EN	RE
21	*Hyaena hyaena*	*	CR
22	*Lutra lutra*	NT	VU
23	*Vormela peregusna*	*	EN
24	*Monachus monachus*	CR	RE
25	*Ursus arctos*	*	EN
26	*Phocoena phocoena*	VU	VU
27	*Tursiops truncatus*	DD	EN
28	*Cervus elaphus*	*	CR
29	*Gazella subgutturosa*	*	RE
30	*Capra caucasica*	EN	EN
31	*Capra cylindricornis*	VU	VU
32	*Capra aegagrus*	VU	CR
33	*Rupicapra rupicapra*	*	EN
	BIRDS		
34	*Podiceps grizegaena*	LC	VU
35	*Pelecanus onocrotalus*	LC	VU
36	*Pelecanus crispus*	VU	EN
37	*Ciconia ciconia*	LC	VU
38	*Ciconia nigra*	LC	VU
39	*Anser erythropus*	VU	EN
40	*Tadorna ferruginea*	LC	VU
41	*Marmaronetta angustirostris*	VU	VU

42	*Melanitta fusca*	LC	EN
43	*Oxyura leucocephala*	EN	EN
44	*Haliaeetus albicilla*	NT	EN
45	*Accipiter brevipes*	LC	VU
46	*Buteo rufinus rufinus*	LC	VU
47	*Aquila heliaca*	VU	VU
48	*Aquila clanga*	VU	VU
49	*Aquila chrysaetus*	LC	VU
50	*Neophron percnopterus*	LC	VU
51	*Gypaetus barbatus aureus*	LC	VU
52	*Aegypius monachus*	NT	EN
53	*Gyps fulvus fulvus*	LC	VU
54	*Falco cherrug*	EN	CR
55	*Falco vespertinus*	*	EN
56	*Falco biarmicus*	LC	VU
57	*Falco naumanni*	VU	CR
58	*Aegolius funereus*	LC	VU
59	*Tyto alba*		EN
60	*Tetraogallus caspius*	LC	VU
61	*Tetrao mlokosiewiczi*	DD	VU
62	*Grus grus*	LC	EN
63	*Tetrax tetrax*	NT	VU
64	*Burhinus oedicnemus*	LC	VU
65	*Panurus biarmicus*	*	VU
66	*Phoenicurus erythrogastrus*	LC	VU
67	*Carpodacus rubicilla*	LC	VU
68	*Prunella ocularis*	LC	VU
	AMPHIBIANS		
69	*Mertensiella caucasica*	VU	VU
70	*Pelobates syriacus*	*	EN
	REPTILES		
71	*Testudo graeca*	VU	VU
72	*Ophisops elegans*	*	VU
73	*Darevskia clarkorum*	EN	EN
74	*Darevskia dahli*	*	VU
75	*Darevskia mixta*	*	VU
76	*Ablepharus pannonicus*	*	CR
77	*Eryx jaculus*	*	VU
78	*Eirenis collaris*	*	VU
79	*Malpolon monspessulanus*	*	VU
80	*Vipera dinniki*	VU	VU
81	*Vipera kaznakovi*	EN	EN
	FISH		
82	*Huso huso*	EN	EN
83	*Acipenser sturio*	CR	CR
84	*Acipenser nudiventris*	EN	EN
85	*Acipenser stellatus*	EN	EN
86	*Acipenser gueldenstaedti*	EN	EN

87	*Acipenser persicus*	EN	EN
88	*Salmo fario*	*	VU
89	*Rutilus frisii*	*	VU
90	*Varicorhinus sieboldi*	*	VU
91	*Sabanejewia aurata*	*	VU
92	*Neogobius fluviatilis*	*	VU
92	*Alosa caspia paleostomi*	*	VU
93	*Salmo fario labrax*	*	EN
94	*Aspius aspius taeniatus*	*	VU
95	*Nemachilus angorae alasanicus*	*	VU
	INVERTEBRATES		
1	*Phassus shamil*	*	EN
2	*Brahmaea ledereri*	*	RE
3	*Eudia pavonia*	*	VU
4	*Perisomena coecigena*	*	VU
5	*Manduca atropos*	*	EN
6	*Rethera comarovi*	*	VU
7	*Deilephila nerii*	*	EN
8	*Pterogon gorgoniades*	*	VU
9	*Pachypasa otus*	*	VU
10	*Lemonia balcanica*	*	VU
11	*Callimorpha dominula*	*	VU
12	*Axiopoena maura*	*	EN
13	*Parnassius apollo*	VU	VU
14	*Parnassius nordmanni*	*	EN
15	*Allancastra caucasica*	VU	VU
16	*Antocharis gruneri*	*	VU
17	*Antocharis damone*	*	VU
18	*Erebia hewistonii*	*	VU
19	*Erebia iranica*	*	VU
20	*Tomares romanovi*	*	VU
21	*Polyommates daphnis*	*	VU
22	*Apocolotois smornovi*	*	VU
23	*Zygaena fraxinii*	*	VU
24	*Bombus fragrans*	*	VU
25	*Bombus eriophorus*	*	VU
26	*Bombus alpigenus*	*	VU
27	*Bombus persicus*	*	VU
28	*Xylocopa violacea*	*	VU
29	*Inotrechus kurnakovi*	*	CR
30	*Inotrechus injaevae*	*	CR
31	*Omophon limbatum*	*	EN
32	*Rosalia alpina*	VU	EN
33	*Cordulegaster mzymtae*	VU	VU
34	*Onychogomphus assimilis*	VU	VU
35	*Callopterix mingrelica*		VU
36	*Astacus colchicus*	*	VU
37	*Pontastacus pewzowi*	*	VU

38	*Dolomedes plantarius*	VU	VU
39	*Eisenia transcaucasica*	*	VU
40	*Eisenia lagodechiensis*	*	VU
41	*Dendrobaena faucium*	*	VU
42	*Alollobophora dubiosa*		VU
43	*Alollobophora kintrishiana*	*	EN
44	*Helix buchi*	*	VU
	TREES		
1	*Acer ibericum*		VU
2	*Anabasis aphylla*		EN
3	*Amygdalus georgica*		EN
4	*Arbutus andrachne*		EN
5	*Astragalus sommieri*		EN
6	*Astragalus tanae*		EN
7	*Betula medwedewii*		VU
8	*Betula megrelica*		VU
9	*Betula raddeana*		VU
10	*Buxus colchica*		VU
11	*Castanea sativa*		VU
12	*Celtis australis*		VU
13	*Celtis glabrata*		VU
14	*Cerasus microcarpa*		VU
15	*Cistus creticus*		VU
16	*Corylus colchica*		VU
17	*Crataegus pontica*		VU
18	*Daphne albowiana*		EN
19	*Daphne pseudosericea*		EN
20	*Daphne transcaucasica*		VU
21	*Epigaea gaultherioides*		VU
22	*Erica arborea*		EN
23	*Eversmannia subspinosa*		EN
24	*Genista abchasica*		VU
25	*Halimodendron halodendron*		EN
26	*Juglans regia*		VU
27	*Juniperus foetidissima*		VU
28	*Juniperus polycarpos*		VU
29	*Laurus nobilis*		VU
30	*Nitraria schoberi*		EN
31	*Osmanthus decorus*		VU
32	*Ostrya carpinifolia*		EN
33	*Pinus pityusa*	VU	VU
34	*Pistacia mutica*		VU
35	*Populus euphratica*		CR
36	*Pterocarya pterocarpa*		VU
37	*Pyrus demetrii*		EN
38	*Pyrus ketzkhovelii*		EN
39	*Pyrus sachokiana*		EN
40	*Quercus hartwissiana*		VU

41	*Quercus imeretina*	VU	VU
42	*Quercus macranthera*		VU
43	*Quercus pedunculiflora*		VU
44	*Quercus pontica*		VU
45	*Rhododendron smirnowii*		VU
46	*Rhododendron ungernii*		VU
47	*Salix kikodseae*		EN
48	*Salvia garedji*		VU
49	*Sambucus tigranii*	VU	CR
50	*Sorbus hajastana*		EN
51	*Staphylea colchica*		VU
52	*Taxus baccata*		VU
53	*Thymus karjaginii*		EN
54	*Ulmus glabra*		VU
55	*Ulmus minor*		VU
56	*Zelkova carpinifolia*		VU

Key: EN= Endangered; VU=Vulnerable, CR=Critically Endangered; RE=Regionally Endangered

Annex D: Major Biomes of Georgia

Extracted from *National Biodiversity Strategy and Action Plan-Georgia*, 2005, Tbilisi

Flood plain forest biome

In eastern Georgia flood plain forests are found along the rivers Mtkvari, Alazani, Iori and downstream Ktsia. These forests are dominated by oak (Quercus pedunculiflora) and poplar (Populus canesaeus, Populus hybrida), and are rich in vines. The poplar forests along the river Iori are noteworthy in terms of plant diversity. There is a clear distinction in species composition of forests along the river and in dry gullies

Flood plain forests in West Georgia are dominated by the alder (Alnus barbata), although there are other tree species present (wingnut Pterocarpa pterocarpa, oak Quercus pedunculiflora, and willow Salix mican, and S. alba). Away from the water sea buckthorn (Hippophae rhamnoides) and dewberry Rubus anatolicus create dense communities.

Semidesert biome

The plains of eastern Georgia support a semidesert biome, with patches of saline soils. This biome occurs between 150 and 600 meters a.s.l. The vegetation is characterised by halophytic and ephemeral species. Nitraria schoeberi communities are found in Shida Kartli, Kakheti and Meskheti. One form of eroded deserts is found on Iori Plateau. These communities also include the rare endemic Tulipa eichleri.

Steppe biome

Steppe vegetation in eastern Georgia occurs at the altitudes of 300-700 m.a.s.l. The soils in this biome are mostly cherozem and occasionally brown. The climate is subtropical with continental dry winters and hot summers. Snow is rare and snow-cover is unstable. The bearded grass(Botriochloa ischaemum) ecosystems are the most significant on the steppe. As a result of human activities, the steppe biome is invaded by forest and shrub.

It should be noted that real steppes occur in Georgia only in the form of small fragments mainly on deforested areas. Species rich Stipa tirsa communities are found on depressed chernozem areas in Gareji. Stipa joanis and S. lessingiana communities are found in dryer areas, where S.tirsa does not occur.

Montane steppe occurs only in southern Georgia at the altitudes of 1,800-2,500 meters a.s.l., mostly on southern slopes and flat areas. The plant community here is dominated by Festuceto salcata and Stipa capillata.

Arid light woodland and hemi-xerophyte scrub biome

Arid light woodlands are found in the semi-desert and steppe belt of eastern Georgia. This biome consists of hemi-xeropyte tree and drought tolerant grass species. The best example of arid woodlands is represented in the Vashlovani Reserve that covers around 5,000 ha. Arid light woodlands are found on grey-yellow soils where the climate is dry subtropical (Vashlovani) or temperate warm (Mtskheta). Celtis caucasica forests are less common. Juniper woodlands* are found on northern slopes of foothills at Mtkheta and Vashlovani, often occupying previously deforested areas. These woodlands are dominated by Juniperus foutidissima (an eastern Mediterranean species) and J. polycarpus (a Middle Eastern species). Pistacia mutica communities are found on chernozem and yellow-brown soils. Semi-xeropyte scrub* mainly occurs on southern foothills of east Georgia at the altitudes of 600-800 m in areas formerly occupied by Georgian oak (Quercus iberica). Xeromorphic shrubs and semi-shrubs, and ephemerals dominate this habitat type.

Forest biome

Forests are the most common habitat type in Georgia, covering 36.7% of the total area of the country. Forests are found throughout the country, with the exception of the Javakheti plateau. Khevi and mountainous Tusheti are relatively poor in forests. Oriental beech (Fagus orientalis)tends to be the dominant species, although there are many other tree species* present in the forests. Notable forest types include:

1. Georgian oak forest (Quercus iberica): Occurs at 600-700 m.a.s.l. in eastern Georgia.
2. Xerophilic oak forests
3. Beech forests (Fagus orientalis): Found in middle and upper zones of the forest belt, these are highly productive ecosystems.
4. Pine forests: These often develop on the edges of mountain steppes or steppe-meadows (in southern Georgia), between 1,700-2,400 meters a.s.l. and are remarkably species rich.
5. Pine and oak woodland: This forest type is particularly noteworthy. It can be found in eastern Georgia at 800-1,100 m.a.s.l., but in Achara (western Georgia) from 300-1,200 m.a s.l.
6. Yew (Taxus baccata) forests: Found in the east of Georgia, these are relic forests, a fragment of which is preserved in the Batsara Reserve.
7. Zelcova forest: These forests are found in east Georgia. The forest in Babaneuri is noteworthy due to its relict nature and distribution.
8. Maple (Acer velutinum) forests: These forests are found only in Alazani Valley. This species does not occur above 1,000 m. In east Georgia Acer laetun is usually found in mixed forests.
9. Colchic forests: These are forest in the Kolkheti (Colcheti) Lowlands (West Georgia), rich in creepers.
10. Endemic pine (Pinus pitiunta): These forests are found on the Abkhazian coastline.
11. Chestnut forests: These are found both in east and west Georgia. In west Georgia they occur at 100-1,000 m. In east Georgia are found as high as 1,400-1,450 meters but typically occur from 400-500 meters up to 1,300 - 1,350 meters a.s.l.

Subalpine biome

The high mountain flora of the subalpine zone is generally very diverse. This is believed to be due to the biome's geographical location, contrasting climatic conditions and its very disrupted and complex topography. The flora of the upper tree line (2,400-2,750 a.s.l.) is especially complex and diverse in terms of species composition and community structure. It is rich in rare endemic and relic species. Major plant community types include light woodlands, crook-stem forests, lying shrubs, high grasslands, and broadleaf meadows. At about 1,800-1,900 m. sparse park-like forests replace closed canopy forests. Sparse forests are common on the Great Caucasus as well as on the Lesser Caucasus. Colcheti crook-stem forests are remarkably rich in endemic and/or relic species.

Alpine zone biome

The alpine zone in Georgia has a lower range of 2,400-2,500, and an upper range of 2,900-3,000 meters a.s.l. It contains communities of: alpine meadows, 'alpine spots', shrubs, rock, and scree micro-communities. There are various grassland communities associated with this biome. They are listed in the appendix with a list of associated species. 'Alpine spots' are areas where snow cover stays for long periods. These communities are noteworthy, but are typically not rich in species composition and only include 20-25 spp. Northern and eastern slopes are covered with 'dekiani' shrubs. This community usually only includes 10-15 species. Species rich dwarf shrub communities are common on wet stony slopes throughout the Great Caucasus range.

Subnival biome

Subnival communities are well represented in central and eastern parts of the Great Caucasus. Only certain groups of plant species are adapted to the extreme conditions of the subnival zone (3,000-3,600 m). Nevertheless the proportion of endemic species is remarkably high (60-70%)

Wetlands

Swamps and peat lands are common at various altitudes throughout the country but are especially well represented in the Colcheti lowlands and the volcanic plateau of southern Georgia. The majority are eutrophic wetlands, with many relic species. In western Georgia peat lands are found from the coast up to the alpine zone. In eastern Georgia due to dryer climate they are not present above 2,000 m.

Hydrophilic tall grasslands are found in the lowlands and Volcanic Plateau of South Georgia up to 2,000 m. Hydrophilic short grasslands develop at 2,300 m and above but only cover an insignificant area. Mezotrophic swamps are found in west Georgia from the coast up to the alpine zone. Some tree species are associated with wetlands, but shrubs are rare and mainly occur at 1700-2000 m.

Annex E: Key Vertebrate Species Associated with Ecosystems of Georgia

Desert/ Semi-desert	Great bustard (*Otis tarda*), houbara bustard (*Chlamidotis undulate*), Egyptian vulture (*Neophron percnopterus*), griffon vulture (*Gyps fulvus*), long-legged buzzard (*Buteo rufinus*), pallid harrier (*Circus macrourus*), lesser kestrel (*Falco naumanni*), striped hyena (*Hyena hyena*), Persian gazelle (*Gazella subguturoza*), Caucasian agama (*Agama caucasica*).
Grassland	Chamois (*Rupicapra rupicapra*), Caucasian tur (*Capra caucasica*), Caucasian mountain goat (*C. cylindricornis*), wild goat (*C. aegagrus*), mouflon (*Ovis ammon*), marbled polecat (*Vormela peregusna*), golden eagle (*Aquila chrysaetos*), lammergeier (*Gypaetus barbatus*), Caucasian snowcock (*Tetraogallus caucasicus*), Caucasian black grouse (*Tetrao mlokosiewiczi*), alpine chough (*Pyrrhocorax graculus*), wallcreeper (*Tichodroma muraria*), great rosefinch (*Carpodacus rubicilla*), (Guldenstadt's redstart (*Phoenicurus erythrogaster*), snowfinch (*Montifringilla nivalis*).
Forests	Brown bear (*Ursus arctos*), stone marten (*Martes foina*),wild cat (*Felis silvestris caucasicus*), lynx (*Felis sylvestris sylvestris*), Caucasian salamander (*Mertensiella caucasica*), Colchic toad (*Bufo verruciossissimus*), Caucasian parsley-frog (*Pelodytes caucasica*), goshawk (*Accipiter gentilis*), sparrowhawk (*Accipiter nisus*), lesser spotted eagle (*Aquila pomarina*), eagle owl (*Bubo bubo*), several species of woodpeckers and numerous songbirds.
Wetlands	Dalmatian pelican (*Pelecanus crispus*), white pelican (*P.onocrotalus*), black stork (*Ciconia nigra*), greater flamingo (*Phoenicopterus roseus*), pygmy cormorant (*Phalacrocorax pygmaeus*), Bewick's swan (*Cygnus bewickii*), lesser white-fronted goose (*Anser erythropus*), white-headed duck (*Oxyura leucocephala*), ferruginous duck (*Aythya nyroca*), demoiselle crane (*Anthropoides virgo*), Eurasian crane (*Grus grus*), and numerous other ducks, geese, herons, and gulls. The Black Sea coast is an important habitat for sturgeon (Acipenseridae) and is home to a number of species including beluga, Russian Sturgeon, ship sturgeon, star sturgeon and the Atlantic sturgeon.

Annex F: The Contemporary Status of Plant Genetic Resources of Georgia

A Project of the International Center for Agricultural Research in the Dry Areas (ICARDA)

Source: http://www.cac-biodiversity.org/geo/geo_biodiversity.htm

Wheat (Triticum L.)

By 40-50 years of the last century in Georgia there was registered 14 species of local origin, 144 varieties and 150–sort populations. At present the situation is radically changed. In 2001 "ICARDA" organized expedition as a result of which there was revealed that local varieties occupy very small areas. As we have mentioned from endemic species the spreading areal of 4 is Racha - Lechkhumi. At present here wheat is not sown at all. In Samtskhe –Javakheti there still are maintained T. carthlicum (dika) sowing places. In upper Svaneti there still are maintained soft wheat landraces which are diminished annually. Fortunately, the part of wheat genetic resources are kept at different scientific research institutes - Scientific Institute of farming, Mtskheta Selection Station, institute of Botany, Agrarian university (at Agrarian university there leads his activity well-known wheat specialist, triticologist P . Naskhidashvili. Also they are kept in some genbanks (Russia, Germany). Though main part of them are lost.

Barley (Hordeum L.)

Front Asia, particularly Transcaucasus, by E. Sinskaia's definition presents the important if not the primary hearth of the cultural barley development. In Georgia there is spread species Hordeum euriassiaticum Vav. Et Bacht. At present in Georgia wide areas are occupied by local spring variety H. distichum L. Another widely spread species is winter barley H. vulgare.

Millet (Panicum miliaceum L)

Existed in Georgia in Neolithic period which indicates to us that millet origin hearth is Georgia. At present millet is brought in upper Svaneti. In ex situ there is one model of this population.

Setaria italica (?)

This culture is brought in Georgia from XV century. V. Menabde singled out as independent species the weed Setaria italica existed in Georgia - S. Ketzkhoveli Menabde et Eritz. and expressed he supposed that Georgian cultural Setaria italica originates from this wild form. That was widely spread in Georgia till 18 th centuries. At present it is sown on a very small area.

Maize (Zea mays)

Brought to Georgia in II half of 17 th century by the Black Sea from Turkey. At present it is widely developed throughout the whole country from sea level at 100-1700 m. At 200 000 hec. There are sown local varieties, according to vegetation period varieties are from 85 days till 140-150 days, characterized by diversity, three varieties are spread – Kbila – Z. mays.indentata, kaza- Z. mays indurata , half kbila or intermediate – Z mays convar. acristae grebense. This half kbila variety originates from Georgia as a result of natural hybridization of kaza and kbila maizes.

Bean (Phaselous L).

Brought to Georgia in II half of XVI century. This culture is widely spread. Annually 10-12 thousand hec is sown. In Georgia there is great diversity of bean. 6 species are spread here: Ph. multiflorus, Ph. lunatus, Ph. acutiflolius , Ph. aureus, Ph. anguearis, Ph. calcaratus, Ph. vulgaris, common bean is mostly spread. 61 varieties of local origin and 406 forms (1964) are defined by S. Tedoradze.

Pea (Pisum)

Georgia presents the primary hearth. There are wildly grown plants possessing the qualities of cultural plants and there are forms possessing wild qualities. 4 species of pea are spread in the Akhalkalaki zone. One of them is called P. transcaucasicum, there is also P. arvense – weed pea

Vetch (Vicia L.) V. pannonica is spread in Georgia locally. This is the oldest form, which is found in Javakheti-Akhalkalaki. At present in this zone there is spread the variety Akhaltsikhe vetch.

Fava Bean (Vicia faba)

Is the oldest culture. Early it was widely spread. At present it is grown in Svaneti in Mestia district from sea level at 1800 m.

Lucerne (Medicago L.)

The blue lucerne M. coerulea is spread in Georgia, mostly in East Georgia, Javakheti. M. dzhawakhetica-in Akhalkalaki district.

Onobrychis transcaucasusPresents the independent hearth. Here there is one very polymorphic variety O. transcaucasica. In Georgia there is also drought resistant endemic form "meskheturi" - O. meschetica.

Clover (Trifolium L.)

T. apertum, humidity resistant species, is the ancestor of whole groups of xerophyte species.

Flax (Linum L.)

In Georgia it is spread mainly in Kolkheti. Kolkhetian relictic cultural drying oil genetically is very close to wildly growing local drying oil - L. angustifolium. Kolkhetian drying oil presents primary source of all forms of all cultural drying oils, which are spread in Transcaucasus and in Front Asia.

Pear (Prunus)

The following pear species are growing in Georgia: P. salicifolia, pear Georgian – P. sachokiana Kuth (central Georgia – Shida Kartli, wild), pear sakhokia – P. sachakiana Kuth (Shida Kartli – central Georgia, wild), P. taochia Woron. (Achara, wild), P. fedorovii Kuth (central Georgia, wild), P. demetrii Kuth (central Georgia, wildly), P. ketZkhovelii Kuth (central Georgia, wild), P. eldarica Grossh. P. Dzukovski thinks that Caucasus presents the main arena Cauof wild and cultural pear.

Apple (Malus)

Wildly growing apple is presented mainly by one species – M. orientalis Uglitzk. This species took participation in the formation of endemic cultural varieties. The local species are: 1. Georgia Sinapi – Georgian Sinapi; 2. Kekhura.

Quince (Cydonia Mill.)

In Georgia it is kept B.C. Sorbus L. Front Asia is one of the origin hearths of these cultures. In Georgia there is described S. colchica Zinserh.

Peach (Prunus)

There are 6 local varieties in Georgia: Khedistauri white, Georgian peach, Wazhuri, Berebis peach, Bestavashvili late, Childistauri yellow

Figs (Ficus)

This species is spread in Georgia, especially in west Georgia. F. colchica Crossh. is endemic for Kolkheti.

Hazel (Corylus)

Front Asia is the secondary centre. Species C. colchica Albov is presented in Georgia, spread in west Georgia and Apkhazeti.

Chestnut (Castanea Mill.)

C. sativa is wildly growing species in west Georgia.

Grape (Vitis L.)

The ancestor of the cultural vine Vitis siluestris Gmel. is widely growing. There are 400 local species of vine in Georgia.

Annex G: International Environmental Treaties to which Georgia is a Party

Name	Date	Place of Adoption	Entry into Force
Convention on the International Maritime Organization	1948	Geneva	2007
International Plant Protection Convention	1951	Rome	1993
Agreement on the Rescue of Astronauts, the Return of Astronauts and Return of Objects launched into Outer Space	1968	London, Moscow, Washington D.C.	1994
Treaty on the Non-Proliferation of Nuclear Weapons	1968	London, Moscow, Washington D.C.	1994
International Convention on Civil Liability for Oil Pollution	1969	Brussels	1994
International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties	1969	Brussels	1995
Convention on Wetlands of International Importance especially as Waterfowl Habitat	1971	Ramsar	1997
Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction	1972	London, Moscow, Washington D.C.	1996
Convention on the International Regulations for Preventing Collisions at Sea	1972	London	1994
Convention concerning the Protection of the World Cultural and Natural Heritage	1972	Paris	1991
International Convention for Safe Containers (CSS)	1972	Geneva	1996
Convention on International Trade in Endangered Species of Wild Fauna and Flora	1973	Washington	1996
International Convention for the Prevention of Pollution from Ships (MARPOL) – Annex V (Optional) - Garbage	1973	London	1994
Protocol relating to Intervention on the High Seas in Cases of Marine Pollution by Substances other than Oil	1973	London	1995
International Convention for the Prevention of Pollution from Ships (MARPOL)	1973	London	1994
International Convention for the Safety of Life at Sea (SOLAS)	1974	London	1994
Protocol to the International Convention on Civil Liability for Oil Pollution Damage	1976	London	1995
Convention on Limitation of Liability for Maritime Claims	1976	London	1996
International Convention for Prevention of Pollution from Ships (MARPOL) – Annex IV (Optional) - Sewage	1978	London	2003
International Convention for Preventing Pollution from Ships (MARPOL) as modified by the Protocol 1978	1978	London	1995
Convention of the Carriage of Goods by Sea	1978	Hamburg	1997
International Convention for Prevention of Pollution from Ships, 1973 (MARPOL) – Annex III (Optional) – Hazardous substances carried in packaged form	1978	London	1995

Amendment to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (Art.XI)	1979	Bonn	1996
Convention on the Conservation of Migratory Species of Wild Animals	1979	Bonn	2000
Convention on the Conservation of European Wildlife and Natural Habitats	1979	Bern	2009
Convention on the Physical Protection of Nuclear Material	1979	Vienna	2006
Convention on Long-Range Transboundary Air Pollution	1979	Geneva	1999
European Outline Convention on Transfrontier Co-operation between Territorial Communities or Authorities	1980	Madrid	2006
Protocol to amend the Convention on Wetlands of International Importance especially as Waterfowl Habitat	1982	Paris	1997
United Nations Convention on the Law of the Sea	1982	Montego Bay	1996
Vienna Convention for the Protection of the Ozone Layer	1985	Vienna	1996
Amendments to Articles 6 and 7 of the Convention on Wetlands of International Importance especially as Waterfowl Habitat	1987	Regina	1997
Protocol on Substances that Deplete the Ozone Layer	1987	Montreal	1996
Protocol relating to the International Convention for the Safety of Life at Sea (SOLAS PROT 1988)	1988	London	2000
Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	1989	Basel	1999
International Convention on Salvage	1989	London	1996
Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer	1990	London	2000
International Convention on Oil Pollution Preparedness, Response and Co-operation	1990	London	1996
Agreement on the Conservation of Bats in Europe	1991	London	2002
Protocol on the Protection of the Black Sea Marine Environment against Pollution by Dumping	1992	Bucharest	1994
Protocol on the Protection of the Black Sea Marine Environment against Pollution from Land-Based Sources	1992	Bucharest	1994
Protocol on Cooperation in Combating Pollution of the Black Sea Marine Environment by Oil and other Harmful Substances in Emergency Situations	1992	Bucharest	1994
Convention on the Protection of the Black Sea against Pollution	1992	Bucharest	1994
United Nations Framework Convention on Climate Change	1992	New York	1994
Convention on Biological Diversity	1992	Rio de Janeiro	1994
Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer	1992	Copenhagen	2000
Protocol to amend the International Convention on Civil Liability for Oil Pollution Damage	1992	London	2001
Protocol to amend the International Convention on the establishment of an International Fund for Compensation for Oil Pollution Damage	1992	London	2001
Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction	1993	Paris, Geneva	1997
Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas	1993	Rome	2003
Agreement on Trade related Aspects of Intellectual Property Rights (TRIPS)	1994	Marrakesh	2000

International Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa	1994	Paris	1999
Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982	1994	New York	1996
Energy Charter Protocol on Energy Efficiency and related Environmental Aspects	1994	Lisbon	2005
Energy Charter Treaty	1994	Lisbon	1998
Agreement on the Conservation of African-Eurasian Migratory Waterbirds	1995	The Hague	2001
Amendment to the Agreement on the conservation of bats in Europe	1995	Bristol	2002
Comprehensive Nuclear Test-Ban Treaty	1996	New York	2002
Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, 1972	1996	London	2006
Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area	1996	Monaco	2001
Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	1997	Vienna	2009
Kyoto Protocol to the United Nations Framework Convention on Climate Change	1997	Kyoto	2005
Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer	1997	Montreal	2000
Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters	1998	Aarhus	2001
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	1998	Rotterdam	2007
Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes	1999	London	1999
Cartagena Protocol on Biosafety to the Convention on Biological Diversity	2000	Montreal	2009
Amendment to the Agreement on the Conservation Bats in Europe	2000	Bristol	2002
Stockholm Convention on Persistent Organic Pollutants	2001	Stockholm	2007
Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context	2003	Kiev	2003
Protocol on Pollutant Release and Transfer Registers	2003	Kiev	2003
Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Watercourses and International Lakes and to the 1992 Convention on the Transboundary Effects of Industrial Accidents	2003	Kiev	2003
Statute of the International Renewable Energy Agency (IRENA)	2009	Bonn	2009

Annex H: Environmental Legislation of Georgia

#	Law name
1.	Concerning the Protection of Soil 1994-12-05
2.	Concerning the Protection of Plants from Harmful Organisms 1994-12-10
3.	Concerning the System of Protected Territories 1996-07-03
4.	Concerning the Legal Principles of Construction, Running, Maintenance and Repair of Some Means of Oil Transit and their Use for the Import, Storage and Transit of Oil through the Territory of Georgia 1996-02-04
5.	Concerning Entrails of the Earth 1996-17-05
6.	Concerning Environmental Protection Permits 1996-15-10
7.	Concerning State Ecological Examination 1996-15-10
8.	Concerning Environmental Protection 1996-10-12
9.	Concerning Wildlife 1996-25-12
10.	Concerning Tourism and Resorts 1997-06-03
11.	Concerning Agricultural Quarantine 1997-15-05
12.	Concerning Water 1997-16-10
13.	Concerning the Melioration of Lands, 1997-16-10
14.	Concerning the Security of Dangerous Enterprises 1997-10-12
15.	Tax Code of Georgia (Chapter X, Chapter XI)
16.	Concerning the Zones of Sanitary Protection of Resorts 1998-20-03
17.	Concerning Dangerous Chemicals 1998-12-06
18.	Concerning the Management of the Use of Forests in the Territory of Georgia 1998-25-06
19.	Concerning the Nuclear and Radioactive Security 1998-30-10
20.	Concerning the Pesticides and Agricultural Chemicals 1998-25-11
21.	Concerning the Set-Up and Management of Protected Territories of Kolkheti 1998-09-12
22.	Concerning Maritime Area of Georgia 1998-24-12
23.	Concerning the Names of Origin and Geographic Marking of Products 1999-22-06
24.	Concerning the Protection of Atmospheric Air 1999-22-06
25.	The Forest Code of Georgia 1999-22-06
26.	Concerning Standardisation, 1999-25-06
27.	Concerning the Compensation for Damage Caused by Use of Harmful Materials 1999-23-07
28.	Criminal Code of Georgia (Book X, Chapter XXXVI)
29,	General Administrative Code of Georgia (Chapter III)
26.	Concerning the Management and Protection of the Sea Coast and River Banks 2000-27-10
27.	Concerning Special Preservation of State Forest Fund and the Planting within the City of Tbilisi and Adjacent Territories 2000-10-11
28.	Concerning On Beekeeping 2002-18-05

Annex I: Protected Areas of Georgia

From the Georgia MoE, Department of Protected Areas

The history of protected areas in Georgia dates back many centuries. In the 12th century, Queen Tamar (1160-1213) made a royal decree to protect certain territories. Five hundred years later the "Law Book" (1709) of King Vakhtang VI (1675-1737), mentions Korugi as "The place for hunting". It was forbidden to cut trees or to walk there, and men were appointed to protect the land from disturbance. In 1912 the first official nature reserve was established in Lagodekhi, Kakheti region. During the 20th century a number of nature reserves were created throughout Georgia.

In 1996, the Georgian Parliament recognized the importance of the natural and cultural areas in Georgia by passing the Law on the System of Protected Areas. This law created a legal basis for the establishment of protected areas, with the objective to protect outstanding natural areas and valuable cultural heritage. Subsequently, internationally recognized categories of protected areas and their application procedures were introduced in Georgia, based on recommendations developed by IUCN.

According to this law, the following categories of Protected Areas may be established and operated in Georgia:

To date, there are five categories of protected areas in Georgia and their total area is 495,892 ha, which comprises 7.1 % of the total territory of the country. Brief information on the protected areas in each category is provided below:

1. Strict Nature Reserve

The first Reserve in Georgia was established in 1912 in the Lagodekhi Ravine. Access to such protected areas is prohibited – only educational visits and non-manipulative scientific research are allowed, subject to special authorization. Currently there are 18 Strict Nature Reserves operating in Georgia, the total area of which is 169,391 ha.

2. National Park

The first National Park in Georgia, called Tbilisi National Park, was established in 1973 (but later liquidated). In 1995 Borjomi-Kharagauli National Park was founded. National Parks occupy comparatively large areas. Therefore, they bear special significance in terms of conserving biodiversity. In addition, the National Parks play a significant role in tourism development, both locally and internationally, by promoting the natural heritage of Georgia. Kolkheti National Park was founded in 1998, Tusheti and Vashlovani National Parks – in 2003, and Mtirala National Park – in 2006. It is planned to establish six more National Parks - in Racha, Svaneti, Javakheti, Tbilisi, Algeti and Kazbegi. In 2007, the National Park of Borjomi-Kharagauli became a member of European network of Protected Landscape—Pan Park and finally, Tbilisi N.P. was declared in 2007.

3. Natural Monument

The first three Natural Monuments were created in Georgia in 2003, with a total area of 238,500 ha. These are comparatively small areas which nevertheless have significant value because of special features. These can be caves, gorges, or river deltas. It is planned to establish several more Natural Monuments.

4. Managed Nature Reserve

The first Managed Nature Reserve in Georgia was established in 1956 in Gardabani district. In this type of protected area, human interference is allowed if it is aimed at restoring flora and fauna species. The sustainable use of particular renewable natural resources is also allowed. To date there are 11 Managed Nature Reserves in Georgia with a total area of 54,184 ha.

5. Protected Landscape

There is one protected landscape in Georgia – Tusheti Protected Landscape (27,903 ha), established in 2003. David-Gareji Protected Landscape will also be established (156,400 ha). Sustainable use of na-tural resources and tourism development are allowed in the Protected Landscapes, unless they jeopardize conservation goals.

PROTECTED AREA	OBJECTIVE	CATEGORY (IUCN)
Strict Nature Reserve	Protected area managed mainly for science or wilderness protection	I
National Park	Protected area managed mainly for ecosystem protection and recreation	II
Natural Monument	Protected area managed mainly for conservation of specific natural features	III
Managed Nature Reserve	Protected area managed mainly for conservation through management intervention	IV
Protected Landscape	Protected area managed mainly for landscape/seascape protection and recreation	V
Multiple Use Area	Protected area managed mainly for the sustainable use of natural ecosystems	VI

Annex J: Matrix of Threats in 1999 and Present Situation

Threats from 2000 report	Status of Threats in 2009	Current Related Recommendations*
1. Habitat Loss and Fragmentation	Efforts were made to increase size of existing Protected Areas and establish new. The total PA territories increased from 3% to 7.1%. Little is being done to conserve biodiversity outside of protected areas. The weak Biodiversity Service department of MoE contains few resources, limited staff numbers and is only involved in setting guidelines for huntable species. A number of corridors have been determined in regional conservation planning but nothing is yet occurring on the ground to protect them.	A5, A6, DT3
2. Invasive species	Invasive species are receiving little attention in Georgia, then and now, with no known programs addressing them.	DT 5
3. Illegal Hunting and harvesting	Law enforcement capacity is increased in MoE by establishing the Environment Inspectorate in this Ministry. The inspectorate has better state funding, is equipped well, but requires capacity building in terms of inspectors' trainings. The MoE's Biodiversity Service department is working to provide better hunting regulations, but few in Georgia bother to buy the required license and the enforcement is still limited.	DT1
4. Pollution of the Black Sea	The Black Sea is widely recognized as polluted, and in Georgia there is little political will to address this concern.	DT2
5. Lack of conservation activities outside of PAs	Limited level conservation activities carried by NGOs outside protected areas are not enough to improve state of biodiversity.	A1, DT3, DT6
6. Lack of conservation actions at Tbilisi Zoo	The Tbilisi Zoo is planning to move to a larger location in the suburbs which will provide more room for captive breeding activities. It is unclear if these conservation efforts will indeed be undertaken. The Zoo is not yet certified by the World Zoo Association partly due to lack of conservation	DT1

	activities.	
7. Weak Legal framework	A weak legal framework still exists, with conflicting regulations still present in different sections. Government declares the plan to solve this issue in 2010 by creating the unified Environmental Code, containing all laws in it.	DT1, DT2
8. Weak Institutional Capacity of government agencies	The MoE is one of the weakest branches of the Georgian Government, and there is little political will in the country to address this.	A2, A3, A4, A5
9. Weak Policy framework	The policy framework still needs strengthening. Main biodiversity related policy documents still do not exist in Georgia - NBSAP, NEAP, Forest Policy, etc. The drive for economic recovery has caused a number of EIA regulations to be weakened, not strengthened. Although Georgia is a party to a number of international conventions, their implementation of international regulations concerning biodiversity, such as those under the Biodiversity Convention, remain weak.	A2, A3, A4
10. Low level of environmental awareness and biodiversity valuation	Ministry of Education has succeeded to integrated biodiversity conservation aspects in national school curricula. A number of projects are implemented by NGOs, but biodiversity awareness still remains low in Georgia and more activities are needed to address this. More efforts in formal education might bring better results.	A7
11. Unavailable systematic tools for prioritization - data-bases on species, habitats, etc.	Reliable data bases do not exist on plant and animal species in Georgia.	A5, A6
12. Absence and/or weak capacity of CBOs and local community groups	A number of NGOs and CBOs have been strengthened by partnerships with international organizations and with donor funds. More efforts are required to sustain activities of CBOs and local community groups.	A7
13. Weak regional cooperation among countries in the Caucasus	Russia and Georgia have a difficult relationship and this also relates to biodiversity conservation programs among other things. Various Transboundary PAs have been suggested with Armenia and	

	Azerbaijan but nothing is happening on the ground.	
14. Limited role of private sector in Biodiversity Conservation	Oil companies, especially BP, are engaged in various natural resources conservation efforts, by establishing the Environmental Investment program and providing project funds. Few other organizations in Georgia have taken on any work of this sort. By and large, Georgians are unaware of biodiversity issues and environmental issues in all arenas, including the private sector.	A7

***Note: "A" recommendations apply to root causes, "DT" recommendations relate to direct threats, in 2009 GBA text**

Annex K: Matrix of Threats Identified and Actions Needed to Address Them

Threats Identified in 2009	Actions Necessary to Address Threats
Root Causes	
A. Reliance of poverty-stricken Georgians on the often unsustainable use of biodiversity to support their families	More community-based programs are needed around PAs and in fragile landscapes to provide the rural poor with more income-making opportunities
B. Lack of political will to promote and support biodiversity and natural resources conservation	A new National Biodiversity Strategy and Action Plan (NBSAP) needs to be developed and approved by the Government of Georgia and used in policy making and on the ground activities. The Environmental Impact Assessment (EIA) process in Georgia needs an overhaul and implementation needs to be strengthened and enforced
C. Lack of good data to effectively manage natural resources and biodiversity	Red List legislation in Georgia needs to be improved to address the following issues: listing and de-listing aspects; necessity of development, approval and implementation of species action plans for listed species A Gap analysis of protected areas needs to be conducted by the government in association with NGOs, universities and other specialists to ensure effective coverage and management for biodiversity. A National Biodiversity Monitoring and Information Management System needs to be established and utilized to manage species, ecosystems and genetic resources
D. Lack of public awareness and understanding of the value of biodiversity and the benefits of conserving natural resources	Public awareness and formal and non-formal education programs are needed to boost environmental concern among Georgians at all levels

Threats Identified in 2009	Actions Necessary to Address Threats
Direct Threats	
1. Poaching and the illegal wildlife trade	Wildlife management laws need to be strengthened and enforced.
2. Pollution of rivers, wetlands and the Black Sea	Water quality standards in Georgia need strengthening and enforcement of infractions.
3. Illegal logging, fuel wood harvesting and the timber trade	More information is needed to effectively allocate and manage logging concessions and to find replacement affordable fuels for local populations.
4. Over-fishing	Aquatic biodiversity and fisheries issues and aquatic ecosystems in general need more attention in Georgia in order to be more effectively managed.
5. Exotic Species	The extent, distribution and problems with exotic species of plants and animals need to be determined and efforts put in place to remove invasive plants from natural habitats and to restore native fish populations.
6. Overgrazing	Efforts need to be made to provide alternative fodder for domestic sheep and goats that are regularly herded through fragile landscapes and protected areas where they directly compete with threatened ungulate species
7. Infrastructure Development	Attention needs to be paid to aquatic biodiversity issues involving hydroelectric schemes, draining of wetlands and other human engineering programs in natural aquatic habitats.
8. Loss of Agricultural Biodiversity	Agrobiodiversity needs to be the focus of conservation efforts.

Annex L: Donor Activities Relating to Biodiversity in Georgia

Donor	Description	Geographic focus	Budget	Dates
Critical Ecosystemes Partnership Fund	WWF. Grants program for national and international NGOs to conserve Caucasus biodiversity	Caucasus	6,000,000	2005-2009
Caucasus Protected Area Fund	Support to Borjomi-Kharagauli National Park	Georgia	150,000	2008-ongoing
WB/GEF	Support to Protected Areas System of Georgia	Georgia	9,000,000	1999-2007
UNDP/GEF	Catalyzing financial sustainability of protecetd areas of Georgia	Georgia	1,000,000	2009-2011
UNDP/GEF	ELKANA. Agro-biodiversity of Georgia	Georgia	1,000,000	2008-2010
UNDP/GEF	Enabling activity for Georgia biodiversity support. Preparation of country reports	Georgia	250,000	2009-2010
WB	Support to Forestry sector in Georgia	Georgia	20,000,000	2000 - cancelled in 2007
MAVA Foundation	WWF. Protected Areas improvement in the Caucasus	Caucasus	5,000,000	2008-2012
Environmental Investment Program (BP and partners)	GCCW. Caucasian Grouse Conservation	Georgia	500,000	2004-2008
Environmental Investment Program (BP and partners)	NACRES. Brown Bear Research and Conservation	Georgia	500,000	2004-2008
Environmental Investment Program (BP and partners)	CARE International. Community development projects around Borjomi-Kharagauli National park	Georgia	1,000,000	2004-2008
Environmental Investment Program (BP and partners)	IUCN. Management Planning and implementation for Ktsia-Tabatskuri Managed Reserve	Georgia	550,000	2006-2009
Environmental Investment Program (BP and partners)	Eurasia Foundation. Grants program for NGOs in biodiversity conservation.	Georgia	900,000	2008-2012
EC	REC-Caucasus - Sustainable Land Management for Mitigating Land Degradation and Reducing Poverty in the South Caucasus Region	South Caucasus		2009-2010
EC	NACRES - Conserving unique biodiversity of the semi-arid landscape in Georgia and developing effective mechanisms to improve the conservation status of large carnivores in and around Vashlovani Protected Area.	Georgia	?	2009 - 2012
Liechtenstein	REC-Caucasus - Support to Recovery of the Paliastomi Lake Ecosystem	Georgia	?	2008-2009

EC	REC-Caucasus. Fostering Community Forest Policy and Practice in Mountain Regions of the Caucasus	South Caucasus	?	2009-2011
EC, World Bank, IUCN, WWF	Forest Law Enforcements and Governance (FLEG) in 7 EU neighbor countries	Georgia, Armenia, Azerbaijan, Ukraine, Belarus, Moldova, Russia	6,000,000	2009-2012
USAID	GCCW. Forestry in Georgia: Sustainable production, sustainable consumption.	Georgia	288,000	2009-2012
USAID/US DOI	Support for National parks Reform in Georgia	Georgia	1,020,000	1999-2010
USAID	CENN. Strengthening local capacity and developing structural dialogue for climate change adaptation, natural disaster risk reduction and post-conflict environmental rehabilitation in Georgia	Georgia	500,000	2009-2012
Germany	WWF-Restoration of forest ecosystems.	Georgia, Armenia	?	2008-2011
Germany	Sustainable management of Biodiversity in protected areas and forests	South Caucasus	6,000,000	2008 - 2018
Finland	Environmental Monitoring system	?	680,000	2008 – 2010
Finland	Finland has earmarked 2,0 mill. euros for the development of environmental secotor in Georgia. No details yet.	?	2,000,000	Planned
France	Management of the Natural Resources (Forest preservation) - National Park of Borjomi-Kharagauli	Georgia	1,200,000	
Germany	Ecoregional programme I: support of Javakheti National Park	Georgia	1,350,000	2008 – 2011
Germany	Ecoregional programme III Support of Kazbegi National Park	Georgia	4,000,000	Planned
Norway	The Norwegian Society for the Conservation of Nature/Friends of the Earth Norway. The international school programme SPARE. The aim is to support the finding of solutions to environmental and energy problems, to strengthen local environmental movements	Georgia	375,000	2005-2008
Germany	Transboundary Joint Secretariat to manage ecoregional program and establishment of new protected areas	South Caucasus	2,000,000	2007-ongoing
Norway	OECD. The aim is to finalize the 2007 Eastern Europe, Caucasus and Central Asia (EECCA) Strategy Progress Assessment Report on the implementation of the environmental strategy for the CIS countries, presented at the Belgrade	CIS	62,500	2006-2007

	conference in October 2007.			
Norway	OECD. The objectives of the project are to support institution-building to secure improved implementation of environmental policies and laws in the CIS countries, and to develop a training programme.	CIS	112,500	2006-2007
Norway	WWF - The aim of the project is to promote the sustainable administration of natural resources in the South Caucasus through the protection of the forest along the Iori river on the Georgia–Azerbaijan border	Georgia	437,500	2005-2008
Norway	WWF - Support to establishment of Mtirala National Park	Georgia	600,000	2007-2010
Norway	IUCN. The aim is to identify threatened plant species and to develop a methodology to monitor and protect them using the "important plant area" (IPA) approach.	Caucasus	101,800	2007-2008
Norway	IUCN. Halting the loss of biodiversity in the Southern Caucasus. The aim is to improve biodiversity monitoring, strengthen the regional system of protected areas, develop sustainable resource management, and increase public awareness.	South Caucasus	250,000	2007-2009
EC	Drafting for a Regional Development/ Rural Development Strategy	Georgia	380,000	
Latvia	Dimensions of Sustainable Development in the Kazbegi and Borjomi Regions. The project covers three long-term measures: - promotion of environmental protection and environmental education,-assessment and development of tourism opportunities,	Georgia	37,000	2006-2009
United Kingdom	DFID funded project with the purpose of developing replicable models for participative regional planning and achieving sustainable improvements in the livelihoods of rural people. The project will be completed in mid March 2009.	South Caucasus	1,600,160	2006-2009

Annex M: Aarhus Report on Environmental Impact Assessment Process in Georgia

Citation: AARHUS CENTRE GEORGIA. OBSERVER REPORT. Environmental Impact Assessment Process in Georgia. February-March 2008

Conclusions

Major shortcomings of the environmental impact assessment system, revealed in the process of observation, relate to the absence of unified, strong EIA structure. Simplifying EIA procedures, dispersing responsibilities between different departments and transmitting part of obligations to developer is not reducing an administrative burden of a state agency. On the opposite, it makes system inflexible and inefficient, and causes more problems in practice.

For instance, dispersion of responsibilities between different departments of the Ministry hampers their normal functioning, especially in the condition of limited human resources. Transmission of the responsibility for public participation in decision making entirely to developer is not ensuring adequate level of participation. In this sense, only a unified EIA body would guarantee permanent information distribution, provision of active information mechanisms, and what is most important, having a feedback with public.

Another, not less important problem is absence of selection criteria for consulting firms. As a result, there is no incentive for improving quality of EIA study. As a result, consulting firms that focus on improving the quality of their service might become practically noncompetitive. Entire absence of post decision making control and monitoring, makes EIA study just a paper work, especially as, in the process of ecological expertise, expertise is conducted on project documentation and EIA report. In this case, with absence of control on the implementation stage, there is no mechanism for controlling a development and assessing the adequacy of EIA study also becomes difficult.

It is remarkable, that existing problems do not ensure development of a right approach to the process of environmental impact assessment. Namely, presently EIA in Georgia serves only as a means for obtaining permit for impact on the environment and with granting a permit its role ends. While, the importance of EIA is far exceeds the environmental "veto" function. EIA is a complex process, which is oriented on the long term effects of reducing negative impact on the environment. In these terms, EIA is an effective instrument for regulatory body, informing decision maker starting from planning the project and helping to perform post decision making control and monitoring. EIA was established in order to manage environment more effectively, and in this regard, neglecting EIA should not be in the interest of decision making and regulatory authorities.

Recommendations

So that environmental impact assessment process does not remain a paper work, it is vital to develop adequate post decision making control and monitoring mechanisms. Namely, it is essential to elaborate corresponding sub-level regulation in order to empower The Service of Environment Protection to perform post-decision making control of permitting conditions and EIA implementation monitoring.

In order to improve the quality of environmental impact assessment studies, it is necessary to raise requirements for EIA reports. In this regard it is very important to establish selecting criteria for consulting firms, for instance such as accreditation or licensing.

It is also important to ensure independence and impartiality of ecological expertise and to separate the stage of ecological expertise from final decision making.

In order to establish well developed EIA structure, unifying all responsibilities within EIA process, it is essential to strengthen department of licenses and permits of the Ministry of Environment Protection and Natural Resources.

In order to improve quality of informing public, it is advisable to develop active information distribution mechanisms and to provide public with information about its rights to participate in decision making.

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Annex O: Section 119 of the Foreign Assistance Act

Sec. 119 Endangered Species

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

(b) \75\ In order to preserve biological diversity, the President is authorized to furnish assistance under this part, notwithstanding section 660,\76\ to assist countries in protecting and maintaining wildlife habitats and in developing sound wildlife management and plant conservation programs. Special efforts should be made to establish and maintain wildlife sanctuaries, reserves, and parks; to enact and enforce anti-poaching measures; and to identify, study, and catalog animal and plant species, especially in tropical environments.

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

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

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

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

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

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

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

(g) \77\ Actions by AID.--The Administrator of the Agency for International Development shall-(1) cooperate with appropriate international organizations, both governmental and nongovernmental;

(2) look to the World Conservation Strategy as an overall guide for actions to conserve biological diversity;

(3) engage in dialogues and exchanges of information with recipient countries which stress the importance of conserving biological diversity for the long-term economic benefit of those countries and which identify and focus on policies of those countries which directly or indirectly contribute to loss of biological diversity;

(4) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity;

(5) whenever possible, enter into long-term agreements in which the recipient country agrees to protect ecosystems or other wildlife habitats recommended for protection by relevant governmental or nongovernmental organizations or as a result of activities undertaken pursuant to paragraph

(6), and the United States agrees to provide, subject to obtaining the necessary appropriations, additional assistance necessary for the establishment and maintenance of such protected areas;

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

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

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

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

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

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

Annex P: Persons Interviewed for the Georgia Biodiversity Assessment

Name	Position	Organization	Email
WASH D.C.			
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Annex Q: ECODIT's Statement of Work

OBJECTIVES

The purpose of this task is to update the country biodiversity analysis a) for Georgia and b) for Azerbaijan. The biodiversity analysis for Georgia was originally conducted by Chemonics International, Inc. in 1999 and updated in 2003 (Attachment 1). The country biodiversity analysis for Azerbaijan was conducted by Chemonics International, Inc. in 2000 and updated in 2004[1].

This analysis will conform to the requirements of Section 119(d) of the Foreign Assistance Act of 1961 (as amended) (FAA 119) and ADS 201.3.9.2 regarding biodiversity analyses for countries' strategic plans. The analyses are intended to assist the USAID Mission to Georgia and Azerbaijan during the current strategic planning process by identifying the actions necessary to conserve biodiversity in each country. According to the requirements of the FAA, Sec. 119(d), the analyses will address the following in two separate deliverables:

(1) the actions necessary in each country to conserve biological diversity, and
(2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.

BACKGROUND

Georgia

The USAID Georgia Mission has drafted the Development Planning Framework (DPF) For Foreign Assistance to Georgia from FY 2009 to FY 2011, which reflects Georgia's and the region's new strategic environmentally sustainable operational plan after Russia's military intervention in August 2008. The DPF will assist USAID/Caucasus in preparing a Country Assistance Strategy (CAS). The findings of the Biodiversity Analysis will provide necessary insight for the future programmatic decision-making required to develop the USG annual Country Operational Plan and will also be included in the CAS. The country-specific analysis will also serve as a planning tool to assist USAID in identifying stand alone and/or cross-cutting opportunities to promote sustainable, environmentally-sound employment, trade, investment and income generation interventions while integrating environmental factors into its overall programs.

Azerbaijan

Azerbaijan, now a division within USAID/Caucasus, is slated for full Mission status in Autumn 2009. A Country Strategy Statement for Azerbaijan is prepared every year under the USG foreign assistance plan. With respect to USAID programs, the Country Strategy Statement must take into account, as needed, the biodiversity analysis as required by Section 119 of the FAA. The current biodiversity analysis update was approved in 2004, and covers FY04-FY09. Future USAID/Caucasus-Azerbaijan Mission Country Strategy Statements and the USG annual Country Operational Plan will reflect the environmental issues identified in the updated biodiversity analysis.

This biodiversity analysis will serve in guiding USAID/Caucasus-Azerbaijan in preparing the environmentally sustainable operational plan statement within the Country Strategy Statement mandated by FAA Section 119(d). The findings of the Biodiversity Assessment analysis will ensure Mission compliance with FAA Section 119, and will provide insight for future programmatic decision making. The country specific analysis will also serve as a planning tool to assist USAID in identifying stand alone and/or cross-cutting opportunities to integrate environmental factors in current and future programs to promote sustainable,

[1] Biodiversity Assessments for Georgia (1999) and Azerbaijan (2000 & 2004) are available on the Development Experience Clearinghouse

environmentally-sound activities that will promote democratic reform and economic growth for FY 2010-2014.

USAID Policies Governing Environmental Procedures

Section 119 of the U.S. Foreign Assistance Act of 1961 (as amended) requires USAID to assess national needs for biodiversity and potential USAID contributions to these needs in all country strategy documents. Specifically, FAA Section 119(d), Country Analysis Requirements requires that:

"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, FAA Sec. 119(d)."

This requirement is also articulated in USAID's Automated Directives System (ADS), Section 201.3.9.2 on mandatory environmental analysis relating to biodiversity and tropical forests for strategic plans. The ADS regulations also indicate that while not required, an Operating Unit "can save time and be more efficient by including all aspects of environment when undertaking the mandatory biodiversity and tropical forestry work." For example, these environmental aspects may include topics such as water resources, sanitation and health, hydropower, energy efficiency, waste management, rural and urban environmental issues and private sector concerns.

STATEMENT OF WORK

Under the direction of a Team Leader, the analyses shall evaluate biodiversity concerns in each country, and shall undertake the appropriate synthesis of the information addressing 1) actions necessary to conserve biodiversity, and 2) the extent actions proposed in the country strategic plans meet, or could meet, the biodiversity needs thus identified.

The analysis Team and/or Team Leader shall, for each country, perform the following activities:

A) Data Collection:

1. Prior to departure, get acquainted with already existing background information about Georgia and Azerbaijan including the 1999 USAID Biodiversity Analysis for Georgia, 2003 Update Memo, 2000 USAID Biodiversity Analysis for Azerbaijan, 2004 Update Memo, and the 2003 UNECE Environmental Performance Review, the 2000 National Environmental Action Programs and any updates, the 2002 Biodiversity Strategy Action Plan (BSAP) and other relevant host country and/or donor environmental reviews specific to the countries' natural resources, ecological and biological specificities, current status of environment and biodiversity, and institutional organization. The Team and/or Team Leader should become knowledgeable about key stakeholders and donors in environment and biodiversity, legislation related to the environment and biodiversity, and other relevant information required for the country analysis. Principal donors include the GTZ, WB, KFW, etc. International and local NGOs working in the biodiversity sector include WWF, IUCN, Birdlife Int., CENN, Green Alternative, NACRES, REC, etc.

2. Prior to departure, the contractor shall hold meetings with the Bureau Environmental Officer (BEO), Country Desk Officer(s), the USAID/EGAT Bureau Biodiversity Team and other pertinent USAID Washington based Technical Staff to gather relevant information on regional programs and Agency environmental regulations. In addition, meetings shall also be held with relevant USG Agencies (MCC, USDA, USDOI, Commerce) active in Georgia and in Azerbaijan, and non-

government organizations suggested by USAID/Caucasus-Georgia and USAID/Caucasus-Azerbaijan or the BEO. Face to face meetings are preferable though teleconferencing is possible.

3. The contractor shall, prior to his/her arrival, consult with USAID Caucasus to identify stakeholders and local officials with whom he/she wishes to conduct the interviews and identify priority site visits. The Team and/or Team Leader will coordinate logistical arrangements with the USAID/Caucasus Georgia and Azerbaijan Mission Environment Officer or designee, and prepare a draft schedule of meetings and site visits acceptable to the Mission staff.

   The Mission will assist the Team and/or Team Leader by providing key references and contacts as well as logistical support where necessary. USAID/Caucasus-Georgia and USAID/Caucasus-Azerbaijan will schedule an in-briefing with USAID management and also help facilitate meetings with donors, host government agencies, and NGOs, as well as other USAID staff to fully brief the Team and/or Team Leader on USAID's program and future vision for their strategy.

4. Upon arrival in the country, the Contractor will hold a meeting with USAID Caucasus to obtain detailed information about the programs, objectives, and goals under the Mission's current and planned strategy. The Contractor and USAID Caucasus will discuss the planned activities required for the analysis as well as the approach that the Contractor will take during the performance.

5. The Contractor will hold meetings with 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 current state of and changes in the countries' specificities, such as protected areas and endangered species since the 1999 report (Georgia) and 2000 report (Azerbaijan), and conduct site visits necessary to validate data and observations.

6. The Contractor will hold meetings with other international donors, agencies and NGOs involved in environmental programs in Georgia and Azerbaijan, and become well informed about ongoing and planned activities by other donors and agencies.

B) Analysis:

Based upon the review of documents, interviews, and site visits, summarize the status of biodiversity in each of Georgia and Azerbaijan. The contractor shall, for each country: contextualize social, economic, institutional, legal, and policy factors specific to the promotion and/or constraint of biodiversity conservation; describe actions currently being taken by government, other donors, NGOs, and the private sector that conserve or threaten biodiversity; identify the key direct and indirect threats to biodiversity; identify the actions necessary to conserve and sustainably manage natural resources and biodiversity. A summary should be provided of the contractor's analysis of Government, Donor, and NGO responses to meet these needs.

C) Report:

The contractor shall prepare two separate reports, one for each of Georgia and Azerbaijan, describing the analysis and conclusions. These reports shall meet the legal requirement of FAA Sec 119 by:

1) clearly articulating the actions necessary to conserve biodiversity in each country; and
2) clearly describing the extent to which USAID actions proposed meet the needs identified:

a. for Georgia in the new Development Planning Framework for Foreign Assistance to Georgia in FY 2009 to FY 2011, and the US Embassy-produced Mission Strategic Plan, among others, which will inform the USG Country Assistance Strategy, or
b. for Azerbaijan the Mission Strategy Statement for **FY 1010-2014**, which will inform the USG Country Assistance Strategy.

This discussion should, wherever possible, point out potential interaction between proposed (and ongoing) USAID activities that may intersect with biodiversity conservation and forest issues or may pose a threat to biodiversity and forests, and suggest mitigating actions.

Each report shall comply with USAID branding and marking requirements and shall include sections covering the following topics:

Title Page, including the date of completion of the analysis report

Table of Contents-Chapters

A. Executive Summary. The executive summary shall specifically state the status of biodiversity conservation efforts, summarize the major threats to biodiversity and required conservation actions, and discuss potential international donor programming opportunities.

B. Introduction, describing the purpose of the analysis and methods used in conducting it, including the timing of the analysis in relation to the timing of the USG Country Assistance Strategy.

C. An overview of the status of biodiversity in the country, including ecosystem diversity, species diversity, threatened & endangered species, agricultural biodiversity (specifically, agriculture and natural product use of native species), ecological processes and ecosystem services, and values and economics of biodiversity and forests. This section shall also address changes to the status of biodiversity conservation in the country since the original report and update.

D. An overview of the social, economic, and political context for sustainable natural resources management and the conservation of biodiversity and forests in the country, including the social and economic environment; institutions, policies, and laws affecting conservation; the national protected area system including all IUCN categories of protected areas; laws affecting the protection of endangered species; and participation in international treaties. This section shall also address changes to the status of these issues in the country since the original report and update.

E. The report shall include a map that depicts protected areas and areas of ecological significance in Georgia. The map should show: the degraded areas of Georgia; gas and oil pipes, and transmission lines that go through protected areas and ecologically sensitive areas; sensitive ecosystems that are not yet protected (including migratory bird flyways); and sensitive areas that are under adverse human influence (e.g. industries and other human interventions) on the environment.

F. An update and review of government, NGO, and donor programs and activities that contribute to conservation and sustainable natural resources management, and an assessment of their effectiveness, strengths, and weaknesses. Data may be consolidated in a summary table of Donor and NGO projects (w/ $ amounts) since original assessment (include implemented, ongoing and planned) related to/or impacting biodiversity conservation (direct and indirect). Identify gaps where USAID could best leverage funds.

G. An update to the threats to biodiversity and forests, including direct threats and indirect threats or root causes of the direct threats.

H. A prioritized description of updated actions necessary to conserve biodiversity and forests in the country, logically flowing from the review of the threats identified under Chapter F, and what is currently being done by government, NGO, and donor programs that address those threats.

I. Annexes to the report should contain, at minimum

a. A matrix which contrasts THREATS identified in the original report to ACTIONS TAKEN by the Host country, NGOs, and/or Donor community.
b. A consolidated matrix paring the current THREATS identified to ACTIONS NECESSARY
c. A table of donor and NGO funded projects in the country
d. Current IUCN Red List and Georgian Red Book data
e. Environment-Related Legislation & Concepts, Plans, Programs, & Strategies (highlight changes since original report)
f. International Conventions and Treaties (highlight changes since original report)
g. The SOW for the analysis
h. Biographical sketches of analysis Team members
i. A list of persons contacted and their institutional affiliation
j. Other background or supporting material as needed such as maps.
k. All references used and cited in the report along with URLs used for information resources.

In a separate document, one for each country, which addresses FAA 119(d)(2), the Contractor shall provide a review of the proposed country's strategy and program, including all Objectives, followed by an analysis of the extent to which actions proposed for support in the Development Planning Framework for Foreign Assistance, Mission Strategy Statement, Embassy Mission Strategic Plan, draft USG CAS, or other planning documents, help meet the needs identified in (G) above. These documents should point out any threats to biodiversity and forests from activities proposed for USAID support, and suggest mitigating actions. They should also identify opportunities for cross-cutting, cross-sectoral linkages with proposed activities (for all proposed Objectives and Program Areas); especially those that would be low cost and/or would enhance the effectiveness of the proposed activities. A consolidated matrix paring the THREATS identified, to ACTIONS needed, with EXTENT TO WHICH USAID addresses threats, and identifying opportunities for USAID will be provided as an Annex to each of these documents.

I. DELIVERABLES:

Four deliverables are required under this Scope of Work.

Georgia Biodiversity Analysis

A Biodiversity Analysis for USAID/Caucasus-Georgia which will satisfy FAA 119(d)(1). This report will examine the threats to biodiversity and the actions necessary to address those threats. ***The Georgia Biodiversity Analysis report shall not exceed 30 pages, excluding annexes.***

Georgia Biodiversity Integration Opportunities

Deliverable B.A: A Biodiversity Integration Opportunities (BIO) report, will address FAA 119(d)(2). This report will be produced to support the Mission in completing the USG CAS or any other strategic/planning documents. As available, the Team and/or Team Leader will review potential development assistance objectives and goals for USAID/Caucasus-Georgia and provide linkages between the needs identified in the FAA 119 analysis and how these needs could be addressed in relevant objectives. This document shall be prepared following Mission review of the 119 analysis, and should reflect the concerns, issues, and comments of Mission Leadership. ***The BIO should not exceed five (5) pages in length***.

Azerbaijan Biodiversity Analysis

Deliverable A.B: A Biodiversity Analysis for USAID/Caucasus-Azerbaijan which will satisfy FAA 119 (d)(1). This report will examine the threats to biodiversity and the actions necessary to address those threats. ***The Azerbaijan Biodiversity Analysis report shall not exceed 30 pages, excluding annexes.***

Azerbaijan Biodiversity Integration Opportunities

Deliverable B.B: A Biodiversity Integration Opportunities (BIO) report will address FAA 119(d)(2). This report will be produced to support the Mission in completing the USG Mission Strategy /planning documents. As available, the Team and/or Team Leader will review potential development assistance objectives and goals for USAID/Caucasus-Azerbaijan and provide linkages between the needs identified in the FAA 119 analysis and how these needs could be addressed in relevant objectives. This document shall be prepared following Mission review of the 119 analysis, and should reflect the concerns, issues, and comments of Mission Leadership. ***The Azerbaijan BIO should not exceed five (5) pages in length.***

No less than 7 days prior to the end of field activities in Georgia, and 5 days prior to the end of field activities in Azerbaijan, the contractor shall prepare and submit draft initial findings for all Deliverables to the USAID Mission Environmental Officer and Program Office. A presentation/exit briefing will be held with USAID/Caucasus Mission Director and Program Staff and with the Azerbaijan Country Director and Program Staff no less than three (3) days following the submittal of the drafts to discuss these initial findings. At the Mission Director's discretion, Embassy personal may also be invited as findings impact the CAS and other strategic development processes. The USAID Mission will review and provide comments on the drafts for required revisions.

A second draft is required within 5 working days of receipt of Mission comments on each deliverable. The Mission will review and transfer these reports to the BEO, whose designated Biodiversity Expert will review these second drafts, and provide written comments.

Final deliverables are each expected within 10 working days of receipt of the BEO comments. The contractor will submit the final FAA 119 Analysis and BIO to the USAID/Caucasus-Georgia and USAID/Caucasus-Azerbaijan offices electronically. The Mission will prepare an FAA 119 facesheet and submit the final document to the E&E Bureau Environmental Officer in Washington, DC for final approval.

The contractor will collaborate closely with the COTR throughout all stages of the assessment, discussing preliminary findings as they emerge and addressing any technical issues that may arise during the project's implementation. This close collaboration will help to reduce the level of substantive technical comments that result from USAID's review of the draft reports, thereby allowing USAID to focus on sensitivities and overall strategic focus of the reports.

Annex R: Biographical Sketch of Team Members

Pat Foster-Turley, Ph.D, Team Leader is an international development specialist with over 15 years of experience in biodiversity, natural resources management, and environmental economics, working in more than a dozen countries in Asia and Africa. She has successfully led international teams in conducting FAA 118/119 biodiversity and tropical forestry analyses, in designing new programs and other natural resources tasks for USAID missions. She has also worked on the USAID side of natural resource management programs while serving as an American Association for the Advancement of Science (AAAS) Fellow in a bilateral mission for Tanzania, in the regional Southern African mission in Botswana and in the USAID Global Bureau in Washington D.C. giving her a wide perspective on USAID processes. Dr. Foster-Turley has also been consulting for the past eight years with Southwick Associates, a firm specializing in assessing and promoting the economic value of hunting, fishing and natural resources for governmental and NGO clients throughout the United States. For many years prior, Dr. Foster-Turley served as Chairman of the IUCN Otter Specialist Group and led an international team of 135 specialists worldwide in the development of the IUCN/SSC Action Plan for Otters (1992), a conservation document still in wide use today. Dr. Foster-Turley has strong communication and social skills and works well with people of all cultures, nationalities and income levels as either a team member or team leader.

Ramaz Gokhelashvili, Senior NRM Specialist is a biodiversity conservation specialist and wildlife ecologist, natural resources and environmental manager with more than 20 years of experience in these fields. He holds an MSc in Wildlife Management from University of Idaho (USA) with focus on conservation biology, endangered species conservation, protected areas management, and social aspects of natural resources management; and a second MSc in Ecology from Tbilisi State University (Georgia) with focus on ecosystems ecology and environmental management. Ramaz has initiated and managed numerous nature conservation projects and programs, assessments and studies in Georgia and other countries of the Caucasus region. His particular professional experience and expertise includes: Regional and international environmental cooperation; Civil society development and networking; Institutional capacity building; Natural resource management and biodiversity policy development; Outreach and publicity campaigns; Fundraising for environmental projects; Assistance to protected areas in performing the management; Management planning for protected areas and endangered species; Coordination and facilitation of workshops, trainings and conferences; Development of Databases and Monitoring systems; Nature tourism development; Wildlife ecology and conservation biology; Water and coastal resource management; Ecosystems management. Ramaz is author of 12 books, including 3 high-school text books, more than 40 scientific peer-review papers and more than 90 articles in environment fields. A citizen of Georgia, Mr. Gokhelashvili is fluent in Georgian, English and Russian.