

BIODIVERSITY ANALYSIS UPDATE FOR AZERBAIJAN

FINAL REPORT – VOLUME I OF II

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

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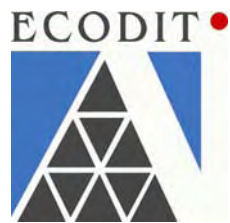
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PREPARED BY:

AZERBAIJAN BIODIVERSITY UPDATE TEAM

(Pat Foster-Turley and Elchin Sultanov)

ASSEMBLED BY ECODIT, INC.



ECODIT, Inc.

1800 N. Kent Street, Suite 1260

Arlington, VA 22209

USA

Tel: +1 703 841 1883

Fax: +1 703 841 1885

Web: www.ecodit.com

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EXECUTIVE SUMMARY

This Biodiversity Analysis for Azerbaijan was conducted to fulfill United States Foreign Assistance Act (FAA) Section 119 and is intended to serve as a useful tool for biodiversity conservation planning and activities by the USAID and other entities engaged in relevant work in Azerbaijan. Although considered an “update” to the original Biodiversity Analysis for Azerbaijan, published in 1999, and updated in 2004, 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 professionals, Pat Foster-Turley (Team Leader and Biodiversity Specialist) and Elchin Sultanov (Natural Resource Management Specialist) under contract with ECODIT, Inc.

The country of Azerbaijan encompasses an area about the size of Maine in the United States, but contains a remarkable diversity of ecosystems, climate zones, and natural features including two mountain ranges with peaks more than 12,000 feet high, alpine meadows, semi-arid steppes, fertile lowland valleys, wetlands, rivers, and a coastline along the Caspian Sea. This geographical diversity has led to a concomitant diversity of animal and plant species. Many of the species found in Azerbaijan are endemics only found here and/or in neighboring areas in Russia, Georgia, Turkey, Iran and Armenia. Azerbaijan 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 Azerbaijan and neighboring countries, internationally the Caucasus Ecoregion is considered a global hotspot for biodiversity. Azerbaijan’s natural resources and biodiversity also have large economic contributions to make in harvest value of plants and animals and in the ecosystem services these features provide to Azeri people and the world.

The country of Azerbaijan has had a tumultuous history extending even into modern days. The collapse of Soviet rule in 1991 was liberating, but also left much of the population poorer than before and without services like free housing, electricity, gas, etc. that they were used to. Divisions of former Soviet lands in the Caucasus have resulted in continuing hostile conflict between Azerbaijan and Armenia, contested territories of Nakhchivan and Nagorno-Karabakh and hundreds of thousands of refugees living as internally displaced persons. Azerbaijan’s petrochemical resources provide a driving force for its economy and a major source of worldwide oil reserves, but its financial rewards rarely reach the local populace who instead often suffer from contamination of their environment as a result of oil production and transport. Following Soviet rule, markets for agricultural and other products diminished, driving more people into poverty. The recent collapse of the global economy has further impacted the people in this country. Biodiversity and populations of harvestable animals and plants have suffered as a result of these various factors.

In present day Azerbaijan, some traits of Soviet rule continue. Protected areas are mostly closed to visitors, there is a strongly centralized government with little input from the populace, and free speech is curtailed. Now, in addition, corruption pervades the system at all levels. All of these factors together make biodiversity conservation a difficult task in Azerbaijan. Despite these hurdles, Azerbaijan is home to dedicated conservationists that are working to protect the natural treasures of their country.

Five root causes and eight specific threats have been singled out here for attention but the root problems run deep and the specific threats to biodiversity are many more and all pervasive. A summary of the threats and recommendations follows.

Root Cause A: Corruption

A1. All activities of the Ministry of Ecology and Natural Resources (MENR) need to be opened for inspection and visible to citizens, donors and all others. Light must be shed on the hiring process, and positions need to be subject to open competition.

A2. All national parks, strict nature reserves and other protected areas need to have management plans in place that follow IUCN Protected Area guidelines. All national parks and protected areas need to be opened up for research and monitoring and well-managed tourism. Salaries of rangers and scientific staff need to be greatly increased. Experienced international specialists need to be involved in work in every protected area.

Root Cause B: Rural Poverty

B1. More community-based programs are needed around protected areas and in fragile landscapes to provide the rural poor with more income-producing opportunities.

B2. Reliable gas supplies need to be provided to communities to decrease their reliance on fuel wood collection for heating and cooking

Root Cause C: Lack of Political Will

C1. A new National Biodiversity Strategy and Action Plan (NBSAP) needs to be developed and approved by the Government of Azerbaijan (GoA) and used in policy making and on the ground activities.

C2. Red Data Book legislation in Azerbaijan needs to be updated, improved, including listing and delisting processes, species action plans, etc. The responsibility for maintenance of Red Data Book and Red List should be removed from MENR and given to scientific organizations including the Academy of Sciences, Universities and Nature Conservation Non Governmental Organizations (NGOs).

C3. The Environmental Impact Assessment (EIA) process in Azerbaijan needs to be more open allowing wide discussion with specialists and the public especially in the case of major habitat changes like drying of lakes, irrigation schemes, new construction projects, etc.

Root Cause D: Lack of Data

D1. A National Biodiversity Monitoring and Information Management System needs to be modernized and also include new rules requiring mandatory representation by scientific organizations, including Institutes of Academy of Sciences, universities and NGO specialists with expertise in species, ecosystems, genetic resources and other relevant specialties.

D2. Scientific staff needs to be incorporated into MENR and into the protected areas and these experts need to be involved in program development and research and monitoring efforts. Data from these projects need to be widely disseminated within and outside of the MENR to allow for its use in biodiversity and natural resources conservation efforts.

Root Cause E: Lack of Awareness

E1. Public awareness and formal and informal education programs are needed to boost environmental concern among Azeris at all levels. School programs can be particularly effective due to the magnification of these efforts over time, through families, and through society as it ages.

E2. Demonstration projects are needed to show the importance of biodiversity conservation and other environmental efforts.

Direct Threat 1: Overgrazing

1-1. Regulations need to be set and enforced for the use of pastures to stay within the carrying capacity of the environment. For instance, rules such as only one cow or four sheep per hectare along with strong penalties for infractions will help preserve these habitats.

1-2. Strictly protected areas need fencing or canals to protect the land from grazing of domestic animals. Where possible, villages should not be located on borders of protected areas. In these cases it is better to change borders of protected areas, and include buffers, so the rules are enforceable.

1-3. Alternative fodder should be provided for domestic sheep and goats that are regularly herded through fragile landscapes.

Direct Threat 2: Logging and Fuel Wood Harvesting

2-1. Gas supplies should be provided to communities to decrease their reliance on fuel wood collection for heating and cooking.

2-2. Illegal commercial logging for furniture and building material needs to be addressed with strong measures such as control posts on roads, strong penalties and publication of infractions in the mass media.

2-3. More information is needed to manage legal logging operations in Azerbaijan. Special projects are needed to identify the real number of harvested trees every year, especially in the most vulnerable areas.

2-4. Where the climate and growing conditions are suitable for forest regeneration or replanting, efforts should be made to increase forest cover.

Direct Threat 3: Poaching and Illegal Wildlife Trade

3-1. Corruption must be fought in this area. Programs to identify the scale of poaching, analyze reasons for each site and publicize this information are needed. There should be immediate strong controls against selling shot birds on the roads.

3-2. The prohibition against hunting, which has been on the books for four years, needs to be rescinded because it prevents the establishment of sustainable hunting regulations. Special hunting zones should be established and seasonal hunting permits should be available based on sound wildlife management practices.

3-3. A captive facility for Azerbaijan wildlife is needed that meets international zoo standards and includes captive breeding and reintroduction programs for native species.

Direct Threat 4: Over-fishing

4-1. Licensing laws for vessels in the Caspian Sea and laws regarding illegal fishing and fishing methods in rivers and lakes should be enforced.

4-2. Monitoring projects are needed to identify the real extent of the damage from illegal fishing and also to set better guidelines for commercial fishing operations.

Direct Threat 5: Water Pollution

5-1. A monitoring system for oil spills in the Caspian Sea along oil pipelines, and in terrestrial oil fields around wetlands that involves international and local experts is necessary.

5-2. Water quality standards in Azerbaijan need strengthening and infractions should be punished. A monitoring system of rivers and the coastline involving NGOs, scientists, and the mass media is needed to identify and publicize problems.

Direct Threat 6: Infrastructure Development

6-1. Projects involving hydroelectric schemes, draining of wetlands and other human engineering programs in natural aquatic habitats need to address the conservation of aquatic biodiversity.

6-2. Fish ladders and other bypasses need to be added to existing dams in all waterways that presently block the passage of sturgeon and other fish to their spawning and nursery grounds.

6-3. Terrestrial infrastructure like disintegrating former Soviet era factories, pipelines and other infrastructure need to be removed and new infrastructure needs to meet EIA requirements.

Direct Threat 7: Exotic Species

7-1. Monitoring efforts for invasive species need to be put in place. The extent and distribution of exotic species, particularly fish and some invasive plants, need to be determined and programs put in place to eliminate invasive exotic species and restore native species.

7-2. Reintroduction projects, restocking of rivers, planting of trees, etc. should only use native species and subspecies unless exhaustive studies demonstrate that an economically important non-native species will not become invasive or interfere with the normal functioning of ecosystems.

Direct Threat 8: Changing Agricultural Practices

8-1. Loss of agrobiodiversity is not yet a major problem in Azerbaijan, and seed banks and nurseries for native plants still exist, but need more support before this loss becomes a major threat.

Further details on the topics, threats 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 Azerbaijan.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	IV
TABLE OF CONTENTS	VIII
1.0 INTRODUCTION.....	1
2.0 STATUS OF BIODIVERSITY IN AZERBAIJAN	2
2.1 OVERVIEW.....	2
2.2 ECOSYSTEM DIVERSITY	2
2.3 SPECIES DIVERSITY AND CONSERVATION STATUS	4
2.4 VALUE OF AZERBAIJAN’S BIODIVERSITY	7
2.5 BIODIVERSITY STATUS UPDATES	9
3.0 IMPORTANT LANDSCAPES	10
3.1 INTRODUCTION	10
3.2 PROTECTED AREAS.....	10
3.3 IMPORTANT BIRD AREAS AND RAMSAR SITES.....	11
3.4 IMPORTANT BIODIVERSITY AREAS.....	11
4.0 SOCIAL, ECONOMIC AND POLITICAL CONTEXT.....	13
4.1 OVERVIEW	13
4.2 MINISTRY OF ECOLOGY AND NATURAL RESOURCES	13
4.3 SCIENTIFIC INSTITUTES AND UNIVERSITIES.....	14
4.4 ZOOS AND BOTANICAL GARDENS	14
4.5 NON GOVERNMENTAL ORGANIZATIONS (NGOs).....	15
4.6 AZERBAIJAN’S BIODIVERSITY RELATED POLICIES AND LAWS	15
4.7 INTERNATIONAL TREATIES	16
5.0 BIODIVERSTY PROGRAMS AND ACTIVITIES	17
5.1 GOVERNMENT OF AZERBAIJAN.....	17
5.2 NGOs.....	17
5.3 DONORS	18
5.4 PROGRAM ASSESSMENT.....	19
5.5 GAPS AND INVESTMENT OPPORTUNITIES	19
6.0 THREATS TO BIODIVERSITY IN AZERBAIJAN	21
6.1 BACKGROUND.....	21
6.2 ROOT CAUSES OF BIODIVERSITY THREATS.....	21
6.3 DIRECT THREATS TO BIODIVERSITY.....	22
7.0 ACTIONS NECESSARY TO CONSERVE BIODIVERSTIY	25
7.1 INTRODUCTION	25
7.2 RECOMMENDATIONS ADDRESSING ROOT CAUSES	25
7.3 RECOMMENDATIONS ADDRESSING DIRECT THREATS.....	26

LIST OF ANNEXES

ANNEX A: IUCN RED LIST FOR AZERBAIJAN A - I
ANNEX B: RED DATA BOOK OF AZERBAIJAN..... B - I
ANNEX C: INFORMATION ON FISH IN AZERBAIJAN..... C - I
ANNEX D: PROTECTED AREAS IN AZERBAIJAN..... D - I
ANNEX E: BIRD MIGRATORY ROUTES AND IMPORTANT BIRD AREASE - I
ANNEX F: FLORA OF SOUTH CAUCASUS.....F - I
ANNEX G: IMPORTANT BIODIVERSITY AREAS IN AZERBAIJAN..... G - I
ANNEX H: BIODIVERSITY CONVENTIONS THAT AZERBAIJAN IS A PARTY TO.....H - I
ANNEX I: DONOR ACTIVITIES RELATING TO BIODIVERSITY IN AZERBAIJAN.....I - I
ANNEX J. MATRIX OF THREATS IDENTIFIED AND ACTIONS NEEDED TO ADDRESSJ - I
ANNEX K: MATRIX OF RECOMMENDATIONS IN 1999 AND PRESENT SITUATION..... K - I
ANNEX L: REFERENCESL - I
ANNEX M: PERSONS INTERVIEWEDM - I
ANNEX N: SECTION 119 OF THE FOREIGN ASSISTANCE ACT.....N - I
ANNEX O: ECODIT’S STATEMENT OF WORK.....O - I
ANNEX P: BIODATA SKETCH OF TEAM MEMBERSP - I

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
AOS	Azerbaijan Ornithological Society
ABA	Azerbaijan Biodiversity Analysis
ABIO	Azerbaijan Biodiversity Integration Opportunities
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
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EU	European Union
FAA	Foreign Assistance Act
GCC	Global Climate Change
GEF	Global Environmental Facility
GIS	Geographic Information System
GoA	Government of Azerbaijan
GTZ	German Technical Corporation
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 the Conservation of Nature

KfW	German Bank for Reconstruction and Development
LEPL	Legal Entity of Public Law
MENR	Ministry of Ecology and Natural Resources
MoE	Ministry of Environment of Azerbaijan
NBSAP	National Biodiversity Strategy and Action Plan
NEAP	National Environmental Action Program
NGO	Non Governmental Organization
PA	Protected Area
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
USAID	US Agency for International Development
WB	The World Bank
WWF	World Wide Fund for Nature

I.0 INTRODUCTION

This Biodiversity Analysis of Azerbaijan is the third in a series beginning in 2000 when the first analysis was conducted here for USAID. An update on the original analysis was published in 2004. Due to the decade since the first full report was produced, 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.

This Biodiversity Analysis Update is prepared now to address the requirements of the U.S. Government's Foreign Assistance Act (FAA) in conjunction with the development of a new Country Assistance Strategy (CAS) for Azerbaijan. This assessment addresses FAA 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." The principle purpose of this report is to meet the requirement of FAA 119 and to serve as a planning tool for USAID/Azerbaijan as they embark on the efforts outlined in their CAS and to ensure that biodiversity considerations are not forgotten along the way.

The Biodiversity Analysis Update for Azerbaijan consists of two volumes. This document is Volume I, designed to address part (1) of FAA Section 119. This part of the analysis provides a general overview of the status and trends of biodiversity and related conservation initiatives in Azerbaijan that may be of use to practitioners in the country. 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 Azerbaijan. Volume II of this analysis, Azerbaijan Biodiversity Integration Opportunities (ABIO), addresses part (2) of FAA 119 and is designed for a USAID audience alone.

This 2009 Biodiversity Analysis Update was carried out by an ECODIT Inc. team of two senior international development professionals, Pat Foster-Turley (Biodiversity Specialist/USA) and Elchin Sultanov (Natural Resource Management Specialist/Azerbaijan). The assessment process included meetings and interviews with a variety of specialists in Baku 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 Shirvan National Park on the eastern seacoast, Hirkan National Park in the southeast and semiarid deserts, wetlands, river corridors and mountain slopes of varying elevations, additional efforts were made to interview people in the field impacted by biodiversity, parks and conservation activities.

Although the scope of work for this assessment only allowed for a two member team and three and a half weeks of investigation, a lot of ground was covered in interviews, material collection and site visits. The assessment team did their best to incorporate these findings in a document intended to contribute to biodiversity conservation within USAID and other organizations in Azerbaijan.

2.0 STATUS OF BIODIVERSITY IN AZERBAIJAN

2.1 Overview

The Republic of Azerbaijan, including the Nakhchivan Autonomous Republic, covers an area of 87,000 square km on the southeastern part of the Caucasus isthmus. The diverse landscapes of Azerbaijan encompass high mountain slopes, alpine meadows and foothills of the Lesser and Greater Caucasus Mountains, the very different Talish mountains in the southeast, and 800 kilometers of the Caspian seashore and related wetlands. These features surround an interior that includes the major riverine corridors of the Kur and Araz River, a number of natural and artificial lakes and wetlands set in semiarid low-lying plains.

Along with this diversity in habitats and altitudes comes a diversity of climatic zones. The southeast region and the northwestern area of Azerbaijan along the Ganikh River have a humid subtropical climate with about 1200 to 1600 mm of rain per year. In contrast, Central Azerbaijan including the Kur-Araz lowlands has a dry subtropical climate with less only 150 to 300 mm of yearly precipitation. Mountain and foothill zones have more moderate climates with about 50 to 1000 mm of rainfall per year.

Azerbaijan's geographical location has provided a biological crossroad for animal and plant distribution from all directions over time. Changing climatic regimes, land masses and connections between the Caspian Sea, Black Sea and the Mediterranean Sea followed by isolation has also influenced the species composition that remains in this country today. In Azerbaijan now, European species like red deer (*Cervus elaphus*), brown bear (*Ursus arctos*) and lynx (*Lynx lynx*) coexist with Asian species like goitered gazelle (*Gazella subgutturosa*) and up until the last century, tigers (*Panthera tigris*). Due to its isolation from other bodies of water now, the Caspian Sea also contains a mix of endemic species including the Caspian seal and a number of economical valuable sturgeon species.

The resulting mix of geographic, biological and climatic conditions in Azerbaijan has led to an outstanding level of diversity in its flora and fauna today. Azerbaijan'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 has been 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 Azerbaijan, Armenia, Georgia and adjacent areas of Russia, Turkey and Iran. This report will try to focus primarily on those habitats and species only found in Azerbaijan, but in some cases the data come from the wider Caucasus Ecoregion.

2.2 Ecosystem Diversity

The Republic of Azerbaijan consists of six major ecological regions, with a variety of biomes contained in each (Azerbaijan Performance Review, 2004). The main regions include:

- Greater and Lesser Caucasus Mountains
- Kur-Araz Valley and Floodplain

- Talish-Lankaran Zone
- Absheron Peninsula
- Caspian Coastal Lowlands
- Nakhchivan Autonomous Republic

Greater and Lesser Caucasus Mountains

Although these two mountain ranges are geographically separated, they contain similar soil types, climate, and flora and fauna and are considered together. In Azerbaijan, these mountains vary from 300 to more than 4400 meters high with different vegetative types typical of different altitudes. About 80 % of Azerbaijan mountain forests consist of Oriental beech (*Fagus orientalis*) with some maples (*Acer trautvetteri*) mixed in. Many other forest types exist, depending on altitude, exposure and other environmental conditions. Lower altitude slopes, if intact, are generally covered with deciduous hornbeam (*Carpinus orientalis*), sweet chestnut (*Castanea sativa*), ash (*Fraxinus excelsior*) and others. A variety of higher plant species, many of which are endemic to the Caucasus mountains, are found within these forests. At higher altitudes trees are replaced with rhododendron (*Rhododendron caucasicum*) shrubs and grassy meadows that often provide summer pastures for domestic sheep and goat herds. A number of Caucasian endemic species including Caucasian turs (*Capra cylindricornis*), Caucasian black grouse (*Tetrao mlokosieniczi*) and many plants are found in these mountains. At lower altitudes, mountain steppes cover the landscape. Non-grazed areas are often covered with dry scrub forests of juniper, and wild pistachio (*Pistachia mutica*), almond (*Amygdalus fenzlianus*), Caucasian pear (*Pyrus caucasicum*), Oriental apple (*Malus orientalis*) and other trees that are distant relatives of cultivated species. Much of the lower altitude steppe land is used for pastureland, fruit orchards and other crops.

Kur-Araz Valley and Floodplain

The Kur River flows across central Azerbaijan from the mountains bordering Georgia, and this river is joined by the Araz River that flows along the Iran border, forming a broad floodplain as the water flows to the Caspian Sea. A few areas of remnant riparian forests (here, called tugay) that have not been cut or flooded due to anthropogenic water regimes line the river banks, with characteristic wing nut (*Pterocarya pterocarpa*), oak (*Quercus longipes*) and white poplar (*Populus alba*) trees. Most of the floodplain area consists of dry steppes with semi-desert vegetation dominated by grass, thorny shrubs and wormwood (*Artemisia fragrans*). Irrigation has opened this dry land to agriculture and grain crops and sheep winter pastures dominate the scene. Part of the Araz floodplain is in Nakhchivan Autonomous Republic with similar species composition.

A number of large reservoirs and smaller natural lakes along the Kur River and surrounding seasonally inundated areas form significant wetland habitat for migratory and breeding bird populations. The largest reservoirs, including Mingachevir (60,500 ha), Araz (14,500 ha), Shamkir (11,500 ha), Yenikend (2,300 ha), Varvara (2,200 ha) and some others have water up to 158 meters in depth, but natural lakes (Sarisu, Aggol, Makhmudchala, Hajigabul, Ajinohur etc.) and ponds are very shallow (2-6 m) with maximal size up to 11,000 ha (Sarisu). Wetland plant communities are dominated by reeds (*Phragmites communis*), cattails (*Typha angustifolia*) and underwater plants with large biomass providing food for hundreds of thousands of ducks, swans, coots and other resident and migratory bird species. A number of the waterfowl using these wetlands are internationally threatened.

Talish-Lenkeran Zone

The southeast corner of Azerbaijan, bordering the Caspian Sea and Iran, is a unique mixed landscape, including the Talish Mountains which rise above 2000 meters adjacent Lenkeran lowlands and wetlands and a climate unusual for Azerbaijan, with dry summers and heavy precipitation the rest of the year. Relict forests in this zone include species that originated in the Tertiary period, including many endemic species of trees, other higher plants and insects. Forests here include chestnut leaf oak (*Quercus castanifolia*), Caucasian elm

(*Zelkova carpinifolia*), Caucasian persimmon (*Diospyros lotus*), Lenkeran acacia (*Akacia julibrissina*) and a number of endemic species of plants. Large animal species in these forests include bear, lynx, American raccoon (*Procyon lotor*), and red deer (*Cervus elaphus*). Much of the land has been modified for agriculture, including grapes, citrus and other tropical fruits and for cattle grazing.

Absheron Peninsula

The Absheron Peninsula is dominated by the city of Baku which is increasingly stretching its boundaries and swallowing the arid lowlands that until recently hosted large numbers of grazing sheep and goats and irrigated cropland. Oil operations are widely evident on the peninsula. Natural lakes, small hills and mud volcanoes provide geographic relief. Waters on the northern side of the peninsula are said to be cleaner than those on the southern shore where the residuals from a number of oil platforms sometimes contaminate the shoreline. Caspian seals (*Pusa caspica*) sometimes haul out on beaches at the tip of the peninsula and it forms a breeding ground for many gull and tern species.

Caspian Coastal Lowlands

Azerbaijan has 800 km of coastline along the world's largest inland body of water, the Caspian Sea. Due to its long isolation from other water bodies, a number of endemic species have proliferated in this brackish water lake, accounting for about 40% of the species living here. The Caspian seal (*Pusa caspica*) and a number of species of economically important sturgeon fish are notable Caspian residents. Changing salinity due to influxes of water from surrounding rivers provide harsh living conditions that few species can adapt to, resulting in a low amount of biodiversity, aside from the endemics. With only a few exceptions, most fish species in the Caspian Sea regularly use adjacent rivers for spawning and nursery grounds. Wetlands surrounding the Caspian Sea are important wintering, breeding and migratory areas for many globally threatened waterfowl species. Periodic flooding of the lowlands near the Caspian Sea has resulted in salinification of much of the land, deterring its use for agriculture and much of the habitat remains as semi-desert with some use for sheep grazing.

Nakhchivan Autonomous Republic

The Nakhchivan Autonomous Republic is a disjunct part of Azerbaijan, separated from the main part of the country by Armenia. In biodiversity and terrain it is more similar to adjacent land in Armenia, Iran and Turkey than it is to the rest of the country. The land is very dry and ranges in altitude from 600 m to about 3500 m. Due to the arid climate, desert steppe rises higher up the mountains than in other parts of Azerbaijan, and trees, mainly mountain oaks (*Quercus mochzantera*) begin at about 2000 m, where more moisture is available. Most plants are similar to those in neighboring countries, and in much of the rest of Azerbaijan. Leopards roam the mountain steppes and slopes and bezoar goat (*Capra aegragus*) and mouflon sheep (*Ovis arie*) are found here but are rare elsewhere in Azerbaijan.

2.3 Species Diversity and Conservation Status

Azerbaijan, with its varied climate, altitudinal zones, and geographic location has more species of flora and fauna than most temperate countries of the world. The biodiversity of Azerbaijan has been widely recognized as a "hotspot" in international biodiversity conservation programs and planning. Azerbaijan is part of the Caucasus Ecoregion that is identified as one of WWF's Global 200 Ecoregions for biodiversity. Azerbaijan and the Caucasus biodiversity is also globally recognized by Conservation International as part of its Critical Ecosystem Partnership Fund program administered with funding from a variety of international donors.

In Azerbaijan, there is very little current information available on plants, animals, fungi and other organisms. Most references date back more than two decades, when Soviet scientists were collecting data. At present, most scientists in the country's Scientific Academy are aged and no longer are conducting fieldwork, and new

students are not attracted to these endeavors. In the universities little capacity exists and most research consists of copying old Soviet manuscripts. The Ministry of Ecology and Natural Resources (MENR) may well have the necessary information but this is unavailable except with a personal letter from the current Minister, a nearly impossible document to obtain. Active NGOs, university faculty, and other professional are not given access to this information. In fact, many doubt that the Ministry has the scientific staff to collect the data in the first place. For these reasons, it is difficult to pinpoint even the number of plant and animal species living in Azerbaijan.

Azerbaijan, like most parties to the Convention on Biological Diversity, has published a country Red Data Book of threatened species, which differs a bit from those species that have gained international conservation status in the International Union for the Conservation of Nature (IUCN) Red Data List. Unfortunately, this Red Book dates to the late 1980s and no new updates have been approved since then. It is widely known that specialists from universities, institutes and NGOs in Azerbaijan have done their part over the last decade to update the information, and the government appointed Red Book Commission of Azerbaijan Academy of Sciences has prepared the draft of the New Red Data Book of Azerbaijan quite some time ago. But until now changes have not been approved by the MENR and no official new Red Data Book for Azerbaijan is available. The approved, but very old version of the full Red Data Book for Azerbaijan is presented in Annex C for reference although it is unlikely to be accurate after all these years.

The IUCN Red Data List is prepared from information provided by global taxonomic specialists. With a lack of information coming from Azerbaijan, some of the species that are listed as occurring in the country, may not actually be present. An example of this is *Abies nordmanniana* which is shown as an IUCN Red list plant for Azerbaijan but really grows only in the western part of Caucasus Ecoregion. In the Azerbaijan Red Data Book that is currently in force, there are 108 animal and 140 plant species listed.

The current IUCN Red Data listings for Azerbaijan, obtained from a search on the official website: www.iucnredlist.org is presented in Annex A. 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 14 Azerbaijan plants and 546 animals listed in the latest IUCN Red Data List (2008).

Mammals

Mammals in Azerbaijan include some species in common with much of Europe and a few endemic to the Caucasus region of Georgia, Russia and Azerbaijan, such as the Eastern Caucasian tur (*Capra cylindricornis*), a relative of goats. Other European-origin mammals include some carnivores, like brown bears, lynx, and European otters (*Lutra lutra*). Other mammals in Azerbaijan have an Asian distribution. Steppe cats inhabit the open semiarid zones and goitered gazelles have good populations in areas where they are protected, and Shirvan National Park in particular. Up until the last decade Persian tiger (*Panthera tigris*) were found in remote forests in Azerbaijan, and lions (*Panthera leo*) once existed here too, but due to their overlap with human occupied steppe habitats were wiped out in earlier times. Jackals and wolves (*Canis lupis*) are said to be common throughout the country, and often prey upon domestic livestock. The Caspian Sea is also home to one species of endangered pinniped, the Caspian seal (*Phoca caspica*), which hauls out on islands and the Absheron peninsula. In all, Azerbaijan has about 28 species of large and medium sized mammals and about 80 species of small mammals including rodents, bats, rabbits and insectivores.

Birds

Birds have received more recent attention than any other taxa in Azerbaijan, due to conservation efforts of NGOs and especially the Azerbaijan Ornithological Society (AOS) and its international partner, Birdlife International and the international birdwatchers that visit this country. At least 392 species of birds have been recorded in Azerbaijan, including at least 200 migratory species. Azerbaijan is an important migratory

path for many species traveling from Europe and Russia and south to Africa and Asia. The lakes and wetlands of Azerbaijan attract many waterfowl species that migrate through or winter here. Many hawks, vultures and other raptors, including a number of IUCN Red List endangered species like the lesser kestrel (*Falco naumanni*) and the imperial eagle (*Aquila heliaca*) also inhabit the forests, steppes and slopes of Azerbaijan. Three endemic bird species for Caucasus, the Caucasian snowcock (*Tetraogallus caucasicus*), the Caucasian black grouse (*Tetrao mlokosieniczi*) and the Caucasian chiffchaff (*Phylloscopus lorenzi*) are found only in Azerbaijan and neighboring areas in the Greater Caucasus Mountains. Azerbaijan holds important populations of a number of southern European species with restricted distributions, such as Ferruginous duck (*Aythya nyroca*), and Marbled teal (*Marmaronetta angustirostris*). During migrations and wintering periods, high numbers of wildfowl species, including the Lesser white-fronted goose (*Anser erythropus*), White-Headed duck (*Oxyura leucocephala*), a globally declining species and other waterfowl inhabit the wetlands too. The steppes of Azerbaijan also play seasonal host to thousands of wintering Little bustards (*Otis tetrax*), providing them with an important wintering ground.

Reptiles and Amphibians

Reptiles and amphibians in Azerbaijan, unlike fish, have little economic value and unlike birds and mammals, there are relatively few enthusiasts that study them. Recent efforts are now underway, funded by the German Technical Corporation (GTZ) to qualify the reptile species and later medicinal plants and fish in Azerbaijan. In current draft documents by GTZ, based on Soviet era documents, Azerbaijan has been found to have two species of tortoise and one species of pond turtle, 26 lizards and 23 snakes. Amphibians are less studied but ten species of frogs and toads, two species of newts and a number of salamanders are recorded here too. The Talish area and the mountain forests of the Greater and Lesser Caucasus provide the best amphibian habitats in the country.

Fish

According to recent unofficial information from a scientist at the Azerbaijan Institute of Fish Economy, there are more than 120 species and subspecies of fish, in 17 families and 53 genera in Azerbaijan. Many of these are endemics to the Caspian Sea Basin, due to its long period of isolation from other water bodies. With the exception of a few species of herring, sprat and goby most Caspian Sea fish are also found in the rivers and inflows in the rest of the country. Six species of sturgeon are found in Azerbaijan waters and five of these are listed as Threatened in the most recent IUCN Red Data Book. (Annex B), and the other species are said to be fairly common. Only one species of sturgeon is listed in the Red List for Azerbaijan (Annex B). In addition to the native fish species, there are twelve introduced species, of which the Crucian carp (*Carasius carasius*) has become most common. More details on commercial and exotic fish are presented in Annex C.

Invertebrates

Over 10,000 species of invertebrates have been recorded in Azerbaijan. Groups including many of the parasitic worm and flukes have been well studied, as have earthworms and some of the key insect groups – such as Lepidoptera (butterflies) and Coleoptera (beetles). The Coleoptera (with almost 5000 recorded species) along with Diptera (flies) and Hymenoptera (wasps and bees) show high species richness among the groups studied to date. According to a 2000 report by the Government of Azerbaijan to the Council of Europe, there are 14,000 species of insects and 11,000 species of arachnids (spiders) in the country.

Plants

The diversity of ecosystems in Azerbaijan and the long term isolation of specific habitats have led to an exceptionally high rate of endemism in plant species. Azerbaijan has more than 4,500 higher plant species, of which more than 800 are endemic species found only in Azerbaijan and adjacent habitats in the Greater and

Lesser Caucasus Mountains or in the Talish-Lenkeran zone that continues on into Iran. Current botanical work in Hirkan National Park in this zone has already located 56 plant species that are sufficiently rare and in a small geographic distribution that they should be included in Azerbaijan Red Data Book updates, whenever these become official. A map of floristic zones of the Southern Caucasus, including Azerbaijan, is presented in Annex F.

As with neighboring Georgia and the rest of the wider Caucasus region, Azerbaijan is considered to be a center of origin for a number of globally important food crops. Azerbaijan is especially noted for fruit and nut trees, and the forests of the Greater and Lesser Caucasus Mountains and the Talish Mountains contain wild ancestors of apples, persimmons, walnuts, chestnuts, pistachios and many other species that have been widely domesticated into many different varieties and strains. From an agrobiodiversity standpoint, a number of grains, particularly wheat, have also been developed here, but some are being lost due to changing agricultural practices in the country.

Other Organisms

The extent and diversity of organisms further down in the evolutionary scale have received little attention in Azerbaijan 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 Azerbaijan's Biodiversity

Plants and Animals

The plants and animals of the forests, wetlands, rivers and other natural habitats in Azerbaijan provide people with many resources necessary for their daily lives and with economic values as well. The residents of Azerbaijan have a 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 are seen in markets and still make their way to many dinner tables around the country today. The GOA estimates that there are as many as 800 medicinal plants also in use in the country. In addition, many people living near forests today are reliant upon fallen timber in the forests for fuel wood for cooking and heating and in some cases still use timber as building materials. The natural grazing lands of Azerbaijan also provide fodder for domestic sheep, goats and cattle that are herded from one area to another over the course of the seasons.

In Azerbaijan, sturgeon fish have a high economic value for their flesh and also, most significantly, for their roe. There is no official data from the government about the catches of sturgeon except their claim that catches are always at their designated quota of 80 tons per year set by the Commission for Biological Resources of the Caspian Sea. There is no outside data to confirm this. One kilogram of Beluga sturgeon caviar sells wholesale in Azerbaijan for 8000 Euros (\$13,000) and the flesh is also of value, so sturgeon no doubt play a large economic role in Azerbaijan.

Other fish species are also harvested in great numbers in Azerbaijan (see Annex F). These numbers reveal a problem caused by the inadvertent introduction of the jellyfish species (*Mnemiopsis leidyi*) into the Caspian Sea in the early 2000s. This jellyfish eats plankton, including the eggs and larvae of some economic fish species. This exotic species is thought to be largely responsible for the major decline in sprat (*Clupeonella spp.*) catches between 2002 and 2008.

Migratory and resident birds, particularly waterfowl, are widely and illegally hunted throughout the country, providing food for villagers and also seen for sale along roads through some districts. Forest animals like wild boar, Caucasian tur and smaller game are also hunted for meat by locals and for sport by foreigners who pay a high price through various somewhat illicit channels for access.

The rivers, streams, lakes and coastal areas of Azerbaijan provide people with fish, crayfish, snails and other edible food items. Some of the fish in Azerbaijan, notably, sturgeon species with delectable roe, have international economic value and are still fished despite a lack of information on the stocks of these animals and international concern about their status. Caviar (sturgeon roe) is sold in Azerbaijan for \$100 per 100 grams, hinting at the economic value of this resource.

Ecotourism

In many countries ecotourism is a viable option that brings money into both government and private coffers, but not so in Azerbaijan. In Azerbaijan, the Ministry of Tourism has been successful in promoting historical tourism in the country. Unfortunately, a similar situation is not in place with the MENR, which passively discourages tourists from visiting so-called national parks. Only about half of these parks are open at any given time, depending on whims of government, and those that are open have limited infrastructure, few trails, and poor interpretive information. Donor funding to enhance these parks has either been refused, or left to lay fallow with nothing to show for it on the ground. At this point nature tourism is not a big draw, and only the most intrepid and hard-headed tourist can find their way inside national parks. As a result, ecotourism including birdwatching has development potential, mainly in unprotected areas which include a number of Important Bird Areas.

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. When these natural wetlands are modified, through channelization for draining, and for agricultural irrigation, many of these necessary functions decline.

The forests that cover an estimated 11-14% of Azerbaijan's landscape are an especially important resource in climate regulation as a sink for greenhouse gases, and also protect clean water supplies as the basis of watersheds. 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 Azerbaijan, 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.

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 Azerbaijan's estimated 12,180,000 hectares of forested land (14% of the total area) the economic value of ecosystem services that the forests provide is a staggering \$527,394,000 per year.

2.5 Biodiversity Status Updates

The country of Azerbaijan has undergone political changes in the past twenty years that have impacted its biodiversity. With the Soviet withdrawal people who were used to being provided for under the Soviet system were thrown into abject poverty and the services of gas, water, etc. that they were used to receiving disintegrated. This poverty and lack of other resources forced many people to rely more heavily on extraction of fuel wood from the forests for heating and cooking, and on hunting and fishing to provide food for the table. A number of endangered or threatened waterfowl species and fish populations are feeling these negative impacts today.

Under Soviet control, Azerbaijan's protected areas were given the strictest levels of protection, and few people were given rights to enter the forests. Strict nature reserves still receive this level of protection. Since 2003 the government has declared eight national parks, mostly expanding upon existing strict nature reserves. Unfortunately access to most of these national parks is still largely restricted for visitors. In theory, such limited access might be helping the biodiversity within the parks, but few people can actually witness what is happening behind the closed borders. Unsustainable logging, hunting, fishing and other extractions of natural resources are rumored to be occurring within these areas but only the government knows what is happening.

Outside of protected areas biodiversity is clearly suffering. Although hunting regulations are enforced, for instance, it is reported that well-placed unofficial payments are all it takes to bypass these regulations. Along the road south of Baku in Lankaran district, for instance, people were openly selling wild ducks, coots and other illegally shot bird species. There is a marked lack of current information on the status, abundance or even the presence of most species of flora and fauna in the country. What information exists dates back more than twenty years ago when Soviet scientists conducted research. Research since then has been underfunded and in some cases actively curtailed by the current government. Environmental NGOs are not given access to most natural areas. Even WWF in Azerbaijan was forced to minimize their activities, and were banned from visiting even the so-called open "national parks" and forced to reduce their office to only one staff person (excluding technical staff) two years ago when MENR took offense at their conservation activities.

The possibility of conducting research and monitoring on the strictly protected areas and even in national parks is extremely limited for anyone outside of the government, which unfortunately does not engage in such work. It is nearly impossible for most foreign scientists and international and national NGO representatives to gain access. Only scientists of the National Academy of Sciences and universities can get limited access after presentation of a special letter for each visit with a detailed list of team members. Acquiring this letter takes many weeks or even months, but sometimes there is no response from MENR at all. In light of the current situation, it is impossible to make an accurate statement about the status of biodiversity in Azerbaijan today.

3.0 IMPORTANT LANDSCAPES

3.1 Introduction

Azerbaijan has many areas that are important for the successful conservation of its biodiversity, including a system of strict nature reserves and protected areas dating from Soviet times. Under current governmental management practices, most of these areas are still closed to the public which in theory protects them from unsustainable resource extraction, hunting and fishing, thus protecting the biodiversity and ecosystem from anthropogenic disturbances. Since ratifying the Convention on Biological Diversity in 2000, the government has officially expanded the system to encompass more nearly 800,000 hectares, which is about 8% of the country, and opened up some for visitors as national parks. In addition there are two Ramsar Wetlands of International Importance, a number of important bird areas, and a number of priority biodiversity sites and corridors that have gained international recognition for their importance but that have varying degrees of protection, or none at all.

3.2 Protected Areas

The first nature reserve in Azerbaijan was established in 1928 but some have actually existed from Russian Empire time as hunting reserves of the King's family and other VIPs of the country. Additional strict nature reserves, sanctuaries and hunting reserves were later established during the Soviet era. Now about 8% of the territory of Azerbaijan is covered by protected areas including eight national parks, 14 strict nature reserves, 22 sanctuaries and two game reserves. Two of these National Parks and four sanctuaries are presently occupied by Armenia. A summary of land area under protection is provided in Table 3.1 below. More information on individual national parks and protected areas is provided in Annex D.

Type of Protected Areas	Area in ha
Strict Nature Reserve - 14	222,727
National Parks - 8	246,332
Sanctuaries - 22	291,075
Game Reserves - 2	45,300

By definition, strict nature reserves in Azerbaijan are closed to visitors, except for scientists with a personal letter of permission from the Minister of the MENR. Many of these reserves are too small to guarantee long term biodiversity conservation for most species. Economic problems have resulted in an increase in poaching, illegal forest cutting and grazing in protected areas where the protection regime is not always enforced. Reserve employees are underpaid and equipment and transportation are lacking. Buffer zones are often non-existent, so human pressures outside reserves spill over the borders and impact protected ecosystems.

Since 2003, the government of Azerbaijan has officially declared a number of national parks with the stated goal of providing public access, ecotourism opportunities, etc. However at this writing only three of these parks were actually open to visitors (Shirvan, Hyrcan and Altıgac), one (Absheron) was open occasionally and often closed for no apparent reason and the last four were closed for various reasons. Some were said to be “under construction,” and have been that way for the past number of years, some are reputed to contain vacation homes of high government officials, and one (Ordabud) is on a restricted border with Armenia. To visit any of these parks a personal letter from the Minister of the MENR is required, but this is very difficult to obtain for NGOs, international donors or anyone else outside of the government.

The Law on Protected Areas stipulates the elaboration of management plans for national parks and other protected areas, but none have yet been forthcoming, even with donor support to help in this process. In one recent case, the World Bank, GEF and other donors combined to provide a total of USD\$17million for a four year project to help establish the new Shadagh National Park and to help further capacity of Ordubud N.P. in Nakhchivan Autonomous Republic. Although some work did proceed in Nakhchivan, which has its own administrative Ministry, the project ended in December 2009 with most of the money unspent and nothing accomplished on the ground in Shadagh N.P. due to limited cooperation from the MENR. Signs outside this park today say “Entry Prohibited.”

3.3 Important Bird Areas and Ramsar Sites

Birdlife International along with the local NGO, the Azerbaijan Ornithological Society (AOS) has pinpointed 53 sites in the country that are Important Bird Areas (IBA). A map and data on these sites and bird migratory routes in Azerbaijan is presented in Annex E. The sites have been chosen for a number of reasons. IBAs of Azerbaijan provide habitat for all 24 IUCN Red List species of Birds occurred in Azerbaijan and 36 species of Red data Book of Azerbaijan. Between IBAs of Azerbaijan 20 are forest, 21 wetlands, 6 high mountains and 6 semi-desert and steppe. 8 NP, 12 Strict State Reserves and 9 Sanctuaries are IBAs so 29 of 53 have protection status. Higher altitude sites in the Greater Caucasus mountains are home to rare endemic birds including the Caucasian snowcock (*Tetraogallus caucasicus*), the Caucasian black grouse (*Tetrao mlokosiewiczi*) and the Caucasian chiffchaff (*Phylloscopus lorentzi*), an international attraction for birdwatchers. The relict Talish mountains contain other bird species only otherwise found in Iran. The wetlands along the coast and in the floodplains of the major rivers and tributaries in Azerbaijan also attract a number of rare, threatened and endangered waterfowl that migrate through or winter in these areas. Finally, a number of raptors that are highly endangered elsewhere, like the little bustard and the imperial eagle, are fairly easy to see in the open steppes and plains of Azerbaijan and thus various steppe sites are listed as IBAs as well.

Two wetlands in Azerbaijan were listed on the Ramsar List of Wetlands of International Importance in 2001. According the official Ramsar website (<http://ramsar.wetlands.org>) no management plan has yet been prepared for either one of them. Both of these are partly within strict nature reserves, and partly outside of them. These sites include:

- **Agh-Gol** includes 500 hectares of brackish wetland and is listed primarily for its function as a wintering and migratory ground for waterfowl. The natural water flow to this wetland is negatively impacted by the adjacent dam and reservoir.
- **Ghizil-Agaj** includes 88,360 hectares with a mix of permanent freshwater marshes and pools, permanent brackish and saline lakes and marshes and coastal saline lagoons with at least one narrow connection to the Caspian Sea. It is an important spawning and nursery ground for fish, and an important wintering and dry season habitat for birds.

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 Azerbaijan’s boundaries and a few involve transboundary areas between Azerbaijan and neighboring countries. A map of these areas is presented in Annex G.

Some of these identified important areas and corridors are in the Greater Caucasus Mountains bordering Russia and Georgia, areas known for endemic species and remaining populations of threatened focal animals and making some transboundary conservation efforts possible. Others include areas of the Lesser Caucasus

Mountains bordering Armenia, and also including some areas in Nakhchivan Autonomous Republic that are totally surrounded by Armenia. Long standing unresolved conflict between Armenia and Azerbaijan at present prevents any idea of collaborative transboundary conservation activities.

The freshwater rivers, floodplains and wetlands in Central Azerbaijan, including the large Mingechevir Reservoir and smaller reservoirs along the Kuril and Araz Rivers have also been selected for their corridor and biodiversity conservation values. The Talish-Zuvand area of relict forests in Southeast Azerbaijan was singled out for its great number of endemic species in a relict forest.

Finally, priority areas were selected along the Caspian Sea Coast primarily for the marine and aquatic resources threatened there and also due to the importance of coastal wetlands to migratory and wintering endangered and threatened bird species.

4.0 SOCIAL, ECONOMIC AND POLITICAL CONTEXT

4.1 Overview

Azerbaijan is a country of strategic importance to the region and the world. It is sandwiched between Russia and Iran and forms a crossroad between the historical, religious and political influences of both the East and West. The country of Azerbaijan has had a tumultuous history extending even into modern days. The collapse of Soviet rule in 1991 was liberating, but also left much of the population poorer than before and without the services like free housing, electricity, gas, etc. that they were accustomed to. Divisions of former Soviet lands in the Caucasus have resulted in continuing hostile conflict between Azerbaijan and Armenia, contested territories of Nakhchivan and Nagorno-Karabakh and hundreds of thousands of refugees living as internally displaced persons. Azerbaijan's petrochemical resources provide a driving force for its economy and a major source of worldwide oil reserves, but its financial rewards rarely reach the local populace who instead often suffer from contamination of their environment as a result of oil production and transport. Following Soviet rule, markets for agricultural and other products diminished, driving more people into poverty. The recent collapse of the global economy has further impacted the people in this country. Biodiversity and populations of harvestable animals and plants have suffered as a result of these various factors.

The institutional framework in Azerbaijan in the field of biodiversity conservation has not changed significantly during the last decade. The MENR remains the primary government agency with the responsibility of biodiversity conservation and renewable natural resources (forestry, wildlife, and fish). The technical capacity of the various departments of MENR are limited as they have been for a number of years. The Ministry of Agriculture is the management authority that oversees issues regarding grazing of livestock. Commercial fisheries are licensed by the Ministry of Economic Development.

The Ministry of Education is responsible for universities and also for elementary, basic and high school education and relevant curricula development, which is an important niche for integration of biodiversity conservation aspects. 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 used in full capacity.

The Parliament of Azerbaijan could play a significant role in advancing policy and legal background of biodiversity conservation, but the Environment Committee of the current Parliament is quite weak and some International Conventions and Agreements connected with Biodiversity (Convention for Protection of Migratory species (Bonn), Africa-Eurasian Waterbirds Agreement, etc) have not yet been ratified.

The role of NGOs involved in biodiversity conservation work in Azerbaijan is weak, and kept that way with pressure from MENR. Details on some of these key organizations involved in biodiversity matters are given below.

4.2 Ministry of Ecology and Natural Resources

In general, the MENR has comparatively little power and respect at higher government levels in Azerbaijan, and it is considered a barrier for economic development goals and objectives. In number of workers, however, this department is second only to the Ministry of Education, which includes all school teachers. In comparison with the Environmental Ministries of neighboring Georgia and Armenia, MENR of the Azerbaijan Republic is quite big and powerful. But despite this, their activities are limited.

Within the MENR, the primary unit for biodiversity conservation is the Department of Protection of Biodiversity and Development of Protected Areas. This unit is responsible for drafting biodiversity related national policies and strategies (jointly with the Division of Ecology and Nature Protection Policy), legal revisions, biodiversity monitoring (together with the National Department for Monitoring of Environment), species conservation, use of wildlife resources (hunting, fishing, wild plant collection), strategy, policy and management of all protected areas. This unit also acts as a focal point for biodiversity related international conventions. Despite this realm of responsibilities, this is among the weakest units in the MENR. The unit lacks the scientific specialists necessary to effectively fulfill its responsibilities and shuns assistance from donors, NGOs or other qualified specialists.

As was discovered during the course of this analysis, it is virtually impossible for anyone outside of the Azerbaijan government to gain access to any MENR staff to gather information on what protected areas exist, what species of plants and animals exist in the country or any other data. The Minister himself must okay any conversations of any of his staff with outsiders of the government and this permission is rarely granted. Access to many of the so-called “national parks” and all of the strict nature reserves is also only possible with a personal letter from the Minister, which involves a lengthy and often impossible task to obtain.

The Department of Development of Forests is responsible for developing forest strategy and policy and for management of forest resources. The Department of Development and Protection of Biological Resources of Water Bodies is responsible for protection and artificial breeding of fish and water biological resources. This Department plays the most important role regarding the utilization of threatened sturgeon fishes.

4.3 Scientific Institutes and Universities

The National Academy of Sciences (Institutes of Zoology, Botany, and Genetics and Selection) and Azerbaijan universities are also important government organizations with indirect roles and functions in environmental management, including biodiversity conservation. For the most part these institutes are relicts from Soviet times, with geriatric staff with minuscule salaries, little equipment, no computers in evidence, facilities in disrepair, and not much else to work with. Good collections of specimens, like birds and fish, do exist in the Institute of Zoology, however from Soviet times, and with new blood and some financial reinforcements, the institute could become viable again. But getting the money to the institute is problematic.

The Ministry of Education oversees the universities in Azerbaijan, which have indirect roles and functions in environmental management, including biodiversity conservation. 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 used in full capacity. The largest universities in Azerbaijan include Baku State University, Nasreddin Tusy Azerbaijan Pedagogical University, Nakhchivan State University, Lanakaran University, and Ganja State Agriculture Academy along with a handful of others. Some of these universities have biology, geology and geography faculty that may have some biodiversity interests. However, there is said to be a payment scale for degrees that begins in grammar school and continues through the grades. Salaries are low, but some of the faculty looks very well off. These factors shed doubt on the qualifications of many of the students that graduate and even on many of the instructors that teach them.

4.4 Zoos and Botanical Gardens

There is also a small zoo in Baku (about 4 ha) run by the government, on a low budget. Many of the enclosures are unfit for the animals. For example, one barred cage about thirty feet by fifteen feet in dimensions contained a pack of four wolves, running frantically around the perimeter while casting anxious looks at zoo visitors very near them. Those that visit the zoo often say that sometimes they see lots of some species of birds or other animals which occur in Azerbaijan and the next time none, and another time more

again. Not coincidentally, these birds and other animals, some of which are threatened species, have value in the illegal wildlife trade and signs point to possible trafficking of the animals through the zoo.

A lot of small collections of birds and other animals exist in the country in small restaurants along road and in big cities. The conditions for these animals as rule are very bad and very often wolves or even eagles are attached to a chain. It is legal to have private zoos but only with the permission and control of local offices of MENR, who most obviously are not enforcing any humane regulations about animal keeping.

A few botanical gardens also exist in Azerbaijan. The botanical garden in Baku is part of the National Academy of Sciences and has quit rich collection of flora. It has not received government financial support in recent years and survives with some commercial activity such as selling flowers, plants and even mushrooms. Another botanical garden, the Dendrarium, also part of the National Academy of Sciences is located in Mardakan, about 40 km from Baku. There are good collections of exotic and local plants here and a small collection of birds and other animals. This is a popular place for the public to visit and it exists primarily through its commercial activities.

4.5 Non Governmental Organizations (NGOs)

Although there are more than 100 national and international non-governmental environmental organizations in Azerbaijan only a handful focus their work on biodiversity conservation and research. The major issue for all of the national NGOS is budgetary constraints. Most depend fully on donor funding and the level of unrestricted funds in their budgets is very low. Pressure from the MENR also keeps these NGOs at a low level of development and greatly limits their activities in the country.

WWF is the only international NGO that maintains a presence in Azerbaijan, Birdlife International works with local national NGO partners, and others like Conservation International also contribute some resources to WWF and other partners in the country. More details on NGO programs are presented in the following chapter.

Beginning in 2008, the GoA began financing some national NGOs from their budget. A competition was announced and 196 NGOs received in total AZN 1,200,000 (about \$1million USD) for implementation of small grants with between 1500 and 11,000AZN. Only 11 of the funded projects addressed environmental issues, showing a very low interest by the GoA in these matters (just 5% of total amount).

4.6 Azerbaijan's Biodiversity related Policies and Laws

The National Programme for Ecologically Sustainable Social-Economic Development in Azerbaijan Republic (2002) and the National Biodiversity Strategy and Action Plan (NBSAP, 2006) are the main national level policy documents related to biodiversity conservation in Azerbaijan. The National Programme for Restoration and Extension of Forests were approved in 2002. This may be the most successful activity of all the programs and strategies of MENR.

Table 4.1 provides a list of laws that relate to biodiversity conservation. Following enactment, a few underwent additional modifications. These laws provide at least the minimal level of coverage that is necessary for effective nature conservation activities in Azerbaijan providing these laws are enforced. Unfortunately none of these laws, in practice, receive the enforcement or management needed to make them effective tools for biodiversity conservation in Azerbaijan. For instance, under the new hunting law enacted in April, 2009, all aspects of hunting now fall under the jurisdiction of MENR. MENR is not only the main authority for setting regulations, but is also responsible for collecting fees from permits and licensing. In the past the Hunting and Fishing Society of Azerbaijan rented lands directly from Government and managed these to enhance animal populations, but now the role of this organization has virtually disappeared, and their expertise along with them.

No	Law name	In Force
1.	Concerning the Protection of Plants	03.12.1996
2.	Concerning the Specially Protected Territories and objects	24.03.2000
3.	Concerning Environmental Protection	08.06.1999
4.	Concerning Quarantine for Plants	27.02.2007
5.	Concerning the Protection Animals	04.06.1999
6.	Concerning the Fishing	27.03.1998
7.	Concerning the Achievements of Selection	08.02.2000
8.	Concerning the possibility to receive information about Environment	09.12.2005
9.	Concerning Ecological Education and Public Awareness	27.01.2003
10.	Concerning the Hunting	20.04.2009

4.7 International Treaties

Azerbaijan is a party to the majority international treaties concerning biodiversity and natural resources and most of those were signed in the period between 1998 and 2001. Obligations made under the signing of these treaties have largely been ignored. For instance, there are no management plans for Ramsar sites, no movement on the original Biodiversity Strategy and Action Plan, no species management plans, etc. Since 2001, it has also become quite difficult to get the government to agree to sign some other important conventions concerning biodiversity. During discussion some opinion was expressed by the government; it was said that Azerbaijan had already signed many conventions concerning biodiversity and it is not necessary increase their number. So at this time, Azerbaijan has not yet signed the Bonn Convention for Conservation of Migratory Species of Wild Animals, Agreement on the Conservation of Africa-Eurasia Migratory Species of Waterbirds and others. A full list of signed conventions is presented in Annex H.

5.0 BIODIVERSITY PROGRAMS AND ACTIVITIES

5.1 Government of Azerbaijan

The number of the Government of Azerbaijan's (GoA) programs and activities that promote biodiversity conservation and sustainable natural resources is quite limited. They consider this topic to be easily funded by international donors, although recently they have refused such help. There are just two related national programs, the National Programme for Ecologically Sustainable Social-Economic Development in Azerbaijan Republic and the National Programme for Restoration and Extension of Forests. In total, 33 international programs were implemented by MENR including eight that at least indirectly concerned the protection of biodiversity. The few most relevant to biodiversity include a project for Creation of Samur-Yalama and Shahdagh National Parks, the construction of fish nurseries for sturgeons for wild release, announcement of Hirkan forest as a potential World Natural Heritage Site, preparation of an Action Plan for Nature Conservation, and analyzing the Ecosystem of Caspian Sea.

Just because these programs have received donor support, however, does not mean they are actually implemented. For instance, World Bank/GEF/Government of Japan joined with the GoA on a 4 year \$17 million project to primarily help develop a management plan, provide infrastructure for tourism, train guards, etc. for the newly created Shahdagh National Park. Four years later, despite money and expertise available, nothing has happened on the ground. The park has no staff to build capacity with, no infrastructure, etc. and a sign in front of it that says "Entry Prohibited". The World Bank people managing this project say that the MENR road-blocked things all along the way, and never did anything they said they would do despite constant pressure. The money remains 90% unspent and the project ended in December 2009 with nothing to show for it. Shamar-Yalama National Park, although receiving support from UNEP does not yet exist. The Hirkan Forest has not yet been officially declared a World Heritage Site, and no one has seen progress on an Action Plan for Nature Conservation.

5.2 NGOs

INTERNATIONAL NGOS

The Azerbaijan branch WWF Caucasus Program Office was the most active international conservation NGO in Azerbaijan with an in-country physical presence. WWF has been operating in Azerbaijan since the beginning of 2000. Protected Areas, forestry, species conservation, policy level assistance and awareness-raising are their main fields of operation. But now relations with MENR have deteriorated and access to all strict protected areas is closed for WWF and most other organizations as well. WWF and other groups also cannot receive permission for scientific research and for involvement in creating infrastructure or helping develop management plans for the national parks. So now WWF mainly implements projects connected with public awareness in very limited volume and also supports work to develop capacity among local fish farmers to raise sturgeon through to adulthood. The number of staff of Azerbaijan branch has decreased just to three persons, including only one biodiversity specialist.

Conservation international (CI) was also active in Azerbaijan through the provision of small and medium grants to national NGOs under the Critical Ecosystems Partnership Fund (CEPF) and helping arrange study tours for MENR staff and other NGOs. Now, however, no new study tours have been approved. BirdLife International is operating in Azerbaijan through their national partner NGO, that also focus on biodiversity outside of protected areas to avoid conflicts with MENR.

NATIONAL NGOS

The spectrum of national environmental 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 more narrowly specialized. A number of Azerbaijan national NGOs continue to work in partnership with International NGOs on various projects.

A few NGOs in Azerbaijan focus on biodiversity. The Azerbaijan Ornithological Society (AOS), first established in 1986 is one of oldest and remains the largest national NGO with a biodiversity focus and is partnered with Birdlife International. AOS conducts research on threatened species, supports conservation of Important Bird Areas in Azerbaijan and conducts public awareness programs and training. The Azerbaijan Society of Mammalogists is a younger organization that conducts some projects concerned bats and ungulates, sometimes in collaboration with the WWF branch in Azerbaijan. The Society of Zoologists of Azerbaijan is just an NGO version of the Institute of Zoology. The chairman is the Director of the Institute and directors are heads of departments of the Institute of Zoology and Botany. Some other small NGOs exist that focus on research and conservation of different groups of animals and plants but some are not officially registered and others implement small grant projects from time to time. Agricultural NGOs (including some with agrobiodiversity interests) are mainly concentrated in Ganja around the State Agriculture Academy.

Other environmental NGOs are not as technical and they conduct work in different spheres that involve the public. Ecosfera produces environmental educational materials and provides informal biodiversity classes and activities for school-aged children and works with local residents to teach people to monitor environmental conditions in their communities. Ecolex and the Green Movement specialize in environmental advocacy. Other NGOs like Ruzgar and Ecores work with climate change and other relevant issues, but with little biodiversity overlap.

5.3 Donors

In spite of the global importance of Azerbaijan's biodiversity the grant field for NGOs in Azerbaijan is very restricted. International foundations (Open Society Institute, Eurasia Foundation) do not support biodiversity or conservation work in Azerbaijan. Multinational agencies (World Bank, GEF, UNDP, UNEP, etc) primarily manage their own programs and are increasingly wary about working with MENR. Most bilateral agencies and embassies generally support programs in democracy and human rights but do not provide grants for biodiversity. Only the Embassies of Norway and Germany have shown some support for conservation activities but usually for restricted environmental questions. One notable exception is a new regional project being undertaken by the German Association of Technical Cooperation (GTZ). "Sustainable Management of Biodiversity in South Caucasus" with headquarters in Tbilisi and a branch division in Baku. The project started in May 2009, will run for 8 years to 2016, with about \$20 million split between Azerbaijan, Georgia and Armenia. Unfortunately, due to the political situation, the project in Azerbaijan will mostly keep their distance from MENR by focusing on public awareness, training and some community level work. One aspect of their program, developing a Biodiversity Monitoring System, however, will require closer collaboration with MENR.

Current donor activities are presented in Annex I. In general the volume of donor help for nature conservation and especially for biodiversity is much less than in neighboring Georgia and Armenia. This is no doubt partly connected with problems in relations with MENR as detailed throughout this document.

For a number of years, BP Oil Company has had an active program providing small grants to various NGOs. But it turns out the NGOs that got these grants were organizations started up by associates of the granting officer. This came to light in mid November 2009 during the course of this assessment. The grant program has now been closed.

5.4 Program Assessment

A few funded programs and projects in Azerbaijan in biodiversity conservation fields are significant in dollar amounts, but the effectiveness is questionable, as Azerbaijan 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 but for the most part these projects have not been carried to fruition. There are limited programs and projects that address biodiversity conservation outside of protected areas. There is little political will in Azerbaijan for such projects, although recently MENR tried to reintroduce gazelles in Agh Goy, a “national park” that is not open to the public in the central part of Azerbaijan. GTZ has also proposed to assist MENR in the establishment of a Biodiversity Monitoring System, which would include selection of key indicators, and capacity building to gather relevant information, to store and analyze it to be applied in policy formulation and priority setting activities. A parallel GTZ project in Georgia is gaining steam, but MENR has not agreed to its implementation in Azerbaijan.

Some programs and projects address the environmental awareness raising issues, but the end result is not satisfactory. Furthermore, many experts assess the trend as negative – conservation 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 long time), mass effect (half million students annually in public schools, plus their parents) and long-term results (school students will later go to all different public and private sectors). Unfortunately these programs remain to be developed in Azerbaijan.

A negative trend is also observed in the level of donor funding for civil society strengthening in the environmental field. From the 1990s to early in the 2000’s more funds were available for environmental NGOs than now. For example the organization Resources for Environmental Activists (ISAR) was founded in 1983, as the Institute for Soviet and American Relations and has had long support by the USG. This work supported civil society in Azerbaijan in a number of ways including supporting environmental NGOs, providing them with space for regular meetings, a lot of trainings, small grant programs, support for participation in international and national conferences, etc. But this organization was closed in Azerbaijan just in the moment of maximal activity and highest success and environmental NGOs suffered a great loss.

5.5 Gaps and investment opportunities

Several clear gaps in donor funding are identified by this assessment and these provide opportunities for USAID and other donors to make solid conservation investments with a reasonable chance of success.

Lack of biodiversity conservation programs outside of protected areas, including promotion of sustainable natural resource management practices Most donor funded projects in Azerbaijan have looked to protected areas, but difficulties with implementation by MENR have limited their success. Direct work with communities creating alternative livelihoods to decrease unsustainable natural resource extraction and furthering involvement and understanding of the use of their resources can bypass the areas that MENR controls while also helping in biodiversity conservation. There is room for many more programs such as the sturgeon fish farm project developed by WWF that can greatly improve the condition of people’s lives and reduce impacts on biodiversity as well. Programs such as those relating to integrated watershed management practices also are extremely important, mostly lacking and would have a good chance of success in Azerbaijan.

Global Climate Change Although international attention is increasing, and many donors plan to initiate programs in this topic, there is still a gap in Azerbaijan regarding climate change programs. Intensive communication and coordination is required with other potential donors to identify areas where USAID and other donors could best leverage funds in climate change adaptation and mitigation programs in Azerbaijan. In relation to biodiversity the Caspian Sea Coast is most vulnerable. For instance, coastal protected areas such as Strict Nature Reserve, Agzybir Lake etc. will be swamped with more salt water from the Caspian Sea 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 Caspian Sea.

Environmental Awareness and Education Integration of biodiversity conservation and natural resources management in formal education may significantly change Azerbaijan attitude towards these topics and eliminate major root causes of biodiversity loss. This is a big gap in Azerbaijan, as the past and existing programs in environmental awareness rising did bring results, and there are very limited attempts of international donors to integrate environment into formal education. USAID has an excellent opportunity to do this within existing and planned civic education programs.

Civil Society and Environment Civil society in Azerbaijan (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 and groups is quite low. More funding is needed to intensify efforts to intensively involve civil society in implementation of its programs, and to implement programs directly addressing this gap.

6.0 THREATS TO BIODIVERSITY IN AZERBAIJAN

6.1 Background

The country of Azerbaijan has had a tumultuous history extending even into modern days. The collapse of Soviet rule in 1991 was liberating, but also left much of the population poorer than before and without services like free housing, electricity, gas, etc that they were used to. Biodiversity and populations of harvestable animals and plants have suffered ever since.

In present day Azerbaijan, some traits of Soviet rule continue. Protected areas are mostly closed to visitors. There is a strongly centralized government with little input from the populace, and free speech is curtailed. In addition, corruption pervades the system at all levels. All of these factors together make biodiversity conservation a difficult task in Azerbaijan. Five root causes and eight specific threats have been singled out here for attention but the root problems run deep and the specific threats to biodiversity are many more and all pervasive.

6.2 Root Causes of Biodiversity Threats

Corruption at all levels constrains conservation activities and effectiveness

Throughout the preparation of this report corruption was encountered. The head of the BP Oil Company's environmental grant program was fired for corruption during this study, along the road, police regularly stopped cars for payments in order to pass, but no one seemed to notice the roadside sellers of illegally shot wild birds. Apparently bribes helped pave the way for this and many other illegal activities that impact biodiversity and life in general. Existing laws regarding wildlife, fishing and other uses of natural resources are overlooked, and often bypassed with unofficial payments. At Baku State University students regaled us with stories of how much they paid to pass exams and ultimately obtain a university degree, and university faculty on small salaries appeared wealthy. To get a job with the government, unofficial payments are also required. Corruption seems to run up and down the chain of command.

Decision-making occurs only in the topmost office, and no one below can act independently without checking with higher-ups first. In the MENR, for instance, without a letter from the Minister himself, no one can visit most of the protected areas, or speak to any staff in the Ministry. Without access that enables anyone to see what is going on in protected areas, rumors that may have truth in them, circulate about government vacation homes in national parks that remain closed to the public, and hunting and fishing opportunities within that are only for high government officials. Bad management and corruption in Azerbaijan rivals poverty as a major root cause of biodiversity loss.

Reliance of poverty-stricken rural Azeris on the often unsustainable use of biodiversity to support their families

Inequitable access to economic opportunity is the most important root cause of threats to biodiversity in Azerbaijan. According to 2008 UN statistics, about 30% to 40% of the population lives below the poverty level. The economic collapse following the Soviet reign left many people poorer than before and without the government provided services they were used to. In rural areas poverty has drawn more people than ever to the forests to collect fuel wood for heating and cooking, leading to severe erosion in many forest areas. Hunting of birds and overfishing for food has also reached new levels both in and outside of protected areas. The unsustainable use of natural biodiversity resources and the harvesting of rare and endemic animals continue virtually unabated as a result of poverty.

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

The GoA is primarily concerned with economic development and has little interest in ecological or biodiversity matters, especially since these may appear to stand in the way of economic growth. A number of examples illustrate this point. For instance, although the GoA has ratified a number of major biodiversity related international treaties more than six years ago, there has been no implementation of any of the major convention requirements since then. Donor money provided to the MENR has gone unspent, with no government interest in seeing national parks opened to the public or developing transparent monitoring systems. Although the Arrhus Convention specifically concerns openness of the government to public input from citizens about the environment, its office in Azerbaijan is tucked away behind guards that restrict access to the MENR building where it is housed. It is supposed to be an NGO entirely separate from the government in order to fulfill its mission.

Lack of good data to effectively manage natural resources and biodiversity

No biodiversity information management system exists; in fact very little information is available in any form about the number, distribution, abundance, health or any other aspect of the flora, fauna and ecosystems in the country. 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. Data that does exist stems back to Soviet researchers a couple of decades ago and “new data” is often just translations of old Russian materials into Azeri. Similarly, there is little available data on fish and migratory bird populations on which to effectively base harvesting quotas or seasonal limits. Although there is a general notion of which species could be found in which protected areas, there is no access into these areas for non-governmental scientists or NGOs to confirm their presence. And, the MENR does not have scientific staff to collect the relevant data.

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

Biodiversity and natural resource conservation is an unknown subject area for many Azeris. Few school curricula incorporate these concerns at any grade level, and non-formal nature clubs which could fill this gap are rare. Television in Azerbaijan is the primary media through which people obtain their information, but television stations are largely controlled by the GoA with little if any environmental programming. Newspapers are also controlled by the government, and freedom of press is rare. The government has its own agenda, primarily economic development, and this sometimes is thought to run counter to conservation matters, so these are edited out or otherwise ignored.

6.3 Direct threats to biodiversity

Azerbaijan, as part of the Southern Caucasus Ecoregion, and a globally recognized hotspot for biodiversity, has received considerable international conservation attention. WWF, in partnership with other donors and conservation groups, led a series of stakeholder workshops to identify biodiversity and conservation issues, which were published in 2006 in “An Ecoregional Conservation Plan for the Caucasus.” Regional threats determined by this group, along with other threats not mentioned (exotic species and changing agricultural practices) form the basis of the direct threats, listed here in order of priority, to Azerbaijan biodiversity, as viewed by this assessment team.

1. Overgrazing

Overgrazing of winter and summer pastures by domestic sheep, goats and cattle is a major threat to terrestrial biodiversity. In some cases, grazing land coincides with the grazing habitats of turs (*Capra spp.*), Bezoar goat

(*Capra aegagrus*) and other rare, endangered or endemic ungulates in Azerbaijan. In many cases overgrazing threatens rare and endemic plants. The major problem with overgrazing is more all-encompassing than this. When the semiarid lands (that make up much of Azerbaijan) are overgrazed, invasive inedible plants take over. This ultimately reduces land available for grazing and compounds the problem. In addition, natural succession is hindered when young shoots of trees are consumed, thus preventing damaged areas from returning to forestland.

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

In Azerbaijan, it is impossible for someone outside the MENR to get an idea of the extent of legal or illegal logging that is occurring in the country. The data is not available, and most protected areas, where such activities are rumored to be occurring, are basically closed to everyone except government officials. Although timber harvesting for furniture, building structures and the like is technically illegal, construction projects in Azerbaijan have no problem finding domestic sources of wood.

A more elemental problem occurs at the local village level. Poverty and lack of government services following the Soviet collapse has forced many people into the forests to collect wood for heating and cooking. Government efforts are underway to provide gas via pipelines to most areas. This is a slow process, and for many regions of the country, gas is still not available, and if it is, it is available for only a short period of time each day—not enough to cook a pot of rice. Until gas or other alternative sources of fuel are adequately provided to the populace, the forests will continue to be lost at an alarming rate.

3. Over-fishing

Over-fishing is no doubt a threat in Azerbaijan, but due to lack of data, the extent of this threat is totally unknown. Except for a few commercial species like herring, salmon and sturgeon, little conservation attention is given to fish and other aquatic resources in this country. Globally threatened sturgeon species in the Caspian Sea and adjacent rivers are still caught in large numbers. Over the past years catches have dropped dramatically, clearly showing the effects of overfishing. Illegal and harmful fishing practices like electro-shocking and poisoning streams and other water bodies still frequently occur around the country. No good data is available on the extent of this problem, but a number of people report its occurrence. One can only imagine the status of fish populations and the threat they are facing.

4. Poaching and the illegal wildlife trade

In theory, all hunting has been banned in Azerbaijan in the last five years, except for foreigners who can pay substantial amounts to hunt tur, Bezoar goats and other ungulate trophy species. In reality, though, hunting is widespread. All along the road south of Baku, bordering strict nature reserves that include wetlands, vendors are seen selling skinned wild birds, they call “chickens” or “domestic ducks”. Ornithologists, however, can often recognize the species, including some threatened birds like various ducks, coots, and even flamingos and pelicans (sold, skinned, as “geese”. The timidity of migratory ducks and other waterfowl in Azerbaijan attests to their fear of humans due to hunting pressures. Within the off-limits protected areas, there is also said to be much hunting by government officials and their guests, but no one else is allowed in these areas to monitor wildlife populations. The zoo in Baku also appears to be involved in the illegal trade of threatened species of birds and other animals, but no data is available, just observations that lead to this conclusion.

5. Pollution of rivers, wetlands and the Caspian Sea

In Azerbaijan, much of the municipal, industrial and agricultural wastes, including human sewage, go directly into the rivers and then to the Caspian Sea. Wastes from neighboring Georgia similarly add to the flow, via

the Mingechevari Reservoir, which luckily acts as a settlement area for some of the pollutants, then on through Azerbaijan and finally to the Caspian Sea. Disintegrating infrastructure like old factories and rusted oil and gas pipelines are found around the countryside, no doubt adding further pollutants. A few mining operations also add toxins to the streams. Oil pollution from active wells, platforms and pipelines are also a regular problem in Azerbaijan. There is no reliable data available on pollution but many water bodies and even the Caspian Sea are widely known to be heavily polluted from these various sources.

6. Infrastructure development

Oil and gas exploration and all of the equipment, platforms, wells, processing plants, reservoirs and pipelines dominate much of coastal Azerbaijan and oil spills along the coast are a common problem. The landscape is filled with decaying old pipelines and structures and old factories and buildings left over from Soviet times. In modern day Baku, new buildings are arising at an accelerated pace, providing housing for many people associated with the oil industry, the booming economy and an influx of people from the villages. Outside Baku, wetlands are continually drained and irrigation channels are dug. EIA procedures are limited, and regulations are unenforced in most cases.

7. Exotic species

The importation of exotic fish species over the past decades for cultivation in natural and artificial ponds has threatened the diversity and abundance of native fish species. In Azerbaijan today most inland lakes, many of the rivers and the Caspian Sea itself have lost most of the native fish species. In the Caspian Sea the invasive jellyfish species *Mnemiopsis leidyi* has also become widely established leading to a decline in plankton and fish larvae. One botany professor states that there are about 1000 invasive plants in Azerbaijan. Some exotic invasive plants are said to be a problem in Azerbaijan, such as *Atraphaxis spinosus* that has taken over much of the semi-desert lands used for sheep grazing. These plants are thorny and inedible and their seeds foul the coats of sheep, reducing the quality of the wool.

8. Changing agricultural practices

Azerbaijan is one of the world's hotspots of agricultural biodiversity, and thought to be the origin of many species, subspecies and stocks of many different fruit, vegetable and grain varieties. Loss of agrobiodiversity is not yet a major problem in Azerbaijan, and seed banks and nurseries for native plants still exist, but need more support before this loss becomes a major threat.

7.0 ACTIONS NECESSARY TO CONSERVE BIODIVERSITY

7.1 Introduction

The previous chapter describes five major root causes and seven direct threats to biodiversity in Azerbaijan. Root causes are labeled A to E, starting with rural poverty followed by four others in no particular order. In addition, seven direct threats are discussed, labeled 1 to 7 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 they address. Each threat, of course, needs to be addressed in a number of different ways. Illustrative actions, only, are outlined here.

These actions are those that 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 Azerbaijan. Particular actions necessary and issues relevant to USAID's CAS are provided in a separate document.

7.2 Recommendations Addressing Root Causes

Root Cause A: Rural Poverty

A1. More community-based programs are needed around protected areas and in fragile landscapes to provide the rural poor with more income-producing opportunities.

A2. Reliable gas supplies need to be provided to communities to decrease their reliance on fuel wood collection for heating and cooking.

Root Cause B: Corruption

B1. All activities of MENR need to be open for inspection and visible to citizens, donors and all others. Light must be shed on the hiring process, and positions need to be subject to open competition.

B2. All national parks, strict nature reserves and other protected areas need to have management plans in place that follow IUCN Protected Area guidelines. All national parks and protected areas need to be open for research and monitoring and well-managed tourism. Salaries of rangers and scientific staff need to be increased to competitive levels. Experienced international specialists need to be involved in work in every protected area.

Root Cause C: Lack of Political Will

C1. A new National Biodiversity Strategy and Action Plan needs to be developed and approved by the Government of Azerbaijan and used in policy making and on the ground activities.

C2. Red Data Book legislation in Azerbaijan needs to be updated and improved, including listing and delisting processes, species action plans, etc. The responsibility for maintenance of Red Data Book and Red List should be removed from MENR and given to scientific organizations including the Institutes of the Academy of Sciences and Universities and nature conservation NGOs.

C3. The Environmental Impact Assessment process in Azerbaijan needs to be more open allowing wide discussion with specialists and the public especially in the case of major habitat changes like drying of lakes, irrigation schemes, new construction projects, etc.

Root Cause D: Lack of Data

D1. A National Biodiversity Monitoring and Information Management System needs to be modernized and also include new rules requiring mandatory representation by scientific organizations, including Institutes of Academy of Sciences, universities and NGO specialists with expertise in species, ecosystems, genetic resources and other relevant specialties.

D2. Scientific staff needs to be incorporated into MENR and into the protected areas, and these experts need to be involved in program development and research and monitoring efforts. Data from these projects need to be widely disseminated within and outside of the MENR to allow for its use in biodiversity and natural resource conservation efforts.

Root Cause E: Lack of Awareness

E1. Public awareness and formal and informal education programs are needed to boost environmental concern among Azeris at all levels. School programs can be particularly effective due to the magnification of these efforts over time, through families, and through society as it ages

E2. Demonstration projects are needed to show the importance of biodiversity conservation.

7.3 Recommendations Addressing Direct Threats

Direct Threat 1: Overgrazing

1-1. Regulations for the use of pastures need to be established and enforced to keep use within the carrying capacity of the grasslands.

1-2. Strictly protected areas need fencing or canals to protect the land from grazing of domestic animals. Where possible, villages should not be located on borders of protected areas. In these cases it is better to change borders of protected areas, and include buffers, so the rules are enforceable.

1-3. Programs are needed to provide alternative fodder for domestic sheep and goats that are regularly herded through fragile landscapes.

Direct Threat 2: Logging and Fuel Wood Harvesting

2-1. Gas supplies need to be provided to communities to decrease their reliance on fuel wood collection for heating and cooking.

2-2. Illegal commercial logging for furniture and building material needs to be addressed with strong measures such as control posts on road, strong penalties and information in mass media about each infraction.

2-3. More information is needed to effectively allocate and manage legal logging operations in Azerbaijan. Special projects are needed to identify the real number of harvested trees every year, especially in most vulnerable areas.

2-4. Where the climate and growing conditions are suitable for forest regeneration or replanting, efforts should be made to increase forest cover.

Direct Threat 3: Poaching and Illegal Wildlife Trade

3-1. Corruption must be fought in this area, by implementing special projects to identify the scale of poaching, analyze reasons for each site and then publicize this information. The sale of shot birds on the roads should be prohibited. Mass media, NGOs and local communities should be involved widely in all these actions.

3-2. The prohibition against hunting, which has been on the books for four years, needs to be rescinded because it prevents the establishment of sustainable hunting regulations. Special hunting zones should be established and seasonal hunting permits should be available based on sound wildlife management practices.

3-3. A captive facility for Azerbaijan wildlife is needed that meets international zoo standards and includes captive breeding and reintroduction programs for native species.

Direct Threat 4: Over-fishing

4-1. Licensing laws for vessels in the Caspian Sea and laws regarding illegal fishing and fishing methods in rivers and lakes need enforcing.

4-2. Monitoring projects are needed to identify the real extent of the damage from illegal fishing and also to set better guidelines for commercial fishing operations.

Direct Threat 5: Water Pollution

5-1. A monitoring system for oil spills in the Caspian Sea along oil pipelines, and in terrestrial oil fields around wetlands that involves international and local experts is needed.

5-2. Water quality standards in Azerbaijan need strengthening and infractions should be punished. A monitoring system of rivers and the coastline involving NGOs, scientists, and the mass media is needed to identify problems and make people aware of them.

Direct Threat 6: Infrastructure Development

6-1. Attention needs to be paid to aquatic biodiversity issues related to hydroelectric schemes, draining of wetlands and other human engineering programs in natural aquatic habitats.

6-2. Fish ladders and other bypasses should be added to existing dams that block the passage of sturgeon and other fish to their spawning and nursery grounds.

6-3. Terrestrial infrastructure like disintegrating former Soviet era factories, pipelines and other infrastructure should be removed and new infrastructure needs to meet EIA requirements.

Direct Threat 7: Exotic Species

7-1. Monitoring efforts for invasive species need to be put in place. The extent and distribution of exotic species of plants and animals need to be determined and efforts put in place to remove invasive exotics and restore native species.

7-2. Reintroduction projects, restocking of rivers, planting of trees, etc. should only use native species and subspecies.

Direct Threat 8: Changing Agricultural Practices

8-1. Loss of agrobiodiversity is not yet a major problem in Azerbaijan, and seed banks and nurseries for native plants still exist, but need more support before this loss becomes a major threat.

ANNEX A: IUCN Red List For Azerbaijan

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 gueldenstaedtii Caspian Sea stock/Russian Sturgeon, Status – Endangered, A2d ver 2.3: needs updating
Acipenser nudiiventris Fringebarbel Sturgeon, Status – Endangered, A1acde+2d ver 2.3: needs updating
Acipenser nudiiventris Caspian Sea stock/Ship Sturgeon, Status – Endangered, A1acde+2d ver 2.3: needs updating
Acipenser persicus Persian Sturgeon, Status – Endangered, A2d ver 2.3: needs updating
Acipenser persicus Caspian Sea stock/Persian Sturgeon, Status – Vulnerable, A1acde ver 2.3: needs updating
Acipenser stellatus Stellate Sturgeon, Status – Endangered, A2d ver 2.3: needs updating
Acipenser stellatus Caspian Sea stock/Stellate Sturgeon, Status – Vulnerable, A1acde+2d ver 2.3: needs updating
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
Capra aegagrus Wild Goat, Status – Vulnerable, A2cd ver 3.1: Pop. trend: decreasing
Capreolus capreolus European Roe Deer, Status - Least Concern, ver 3.1: Pop. trend: increasing
Cerambyx cerdo Greater Capricorn Beetle, Status – Vulnerable, A1c+2c ver 2.3: needs updating
Charadrius hiaticula Common Ringed Plover, Status - Least Concern, ver 3.1
Chlamydotis undulata Houbara Bustard, Status – Vulnerable, A2bcd+3bcd+4bcd ver 3.1: Pop. trend: decreasing
Chlidonias leucopterus White-winged Tern, Status - Least Concern, ver 3.1
Cyprinus carpio Wild Common Carp, Status – Vulnerable, A2ce ver 3.1: Pop. trend: unknown
Darevskia rostombekovi Rostombekov's Lizard, Status – Endangered, B1ab(i,iii) ver 3.1: Pop. trend: decreasing
Equus hemionus Asiatic Wild Ass, Status – Endangered, A2abc+3bd ver 3.1: Pop. trend: decreasing
Eremias pleskei Transcaucasian Racerunner, Status - Critically Endangered, A2c ver 3.1: Pop. trend: decreasing
Falco cherrug Saker Falcon, Status – Endangered, A2bcd+3cd+4bcd 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: Pop. trend: decreasing
Grus leucogeranus Siberian Crane, Status - Critically Endangered, A3bcd+4bcd ver 3.1: Pop. trend: decreasing
Huso huso European Sturgeon, Status – Endangered, A2d ver 2.3: needs updating
Huso huso Caspian Sea stock/Beluga, Status – Endangered, A1acde+2d ver 2.3: needs updating
Luciobarbus brachycephalus Shorthead Barbel, Status – Vulnerable, A2cd 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
Meriones dabli Dahl's Jird, Status – Endangered, B1ab(iii) ver 3.1: Pop. trend: decreasing
Natrix megalcephala 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
Numenius tenuirostris Slender-billed Curlew, Status - Critically Endangered, C2a(ii); D ver 3.1: Pop. trend: decreasing
Otis tarda Great Bustard, Status – Vulnerable, A2c+3c+4c ver 3.1: Pop. trend: decreasing
Ovis orientalis Urial, Status – Vulnerable, A2cde ver 3.1: Pop. trend: decreasing

Oxyura leucocephala White-headed Duck, Status – Endangered, A2bcde+4bcde 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
Phrynocephalus borvathi Status - Critically Endangered, A2c ver 3.1: Pop. trend: decreasing
Phrynocephalus persicus Persian Toad Agame, Status – Vulnerable, A2c ver 3.1: Pop. trend: stable
Stenodus leucichthys Beloribitsa, Status - Extinct in the Wild, ver 3.1
Testudo graeca Spur-thighed Tortoise, Status – Vulnerable, A1cd ver 2.3: needs updating
Testudo horsfieldii Central Asian Tortoise, Status – Vulnerable, A2d ver 2.3: needs updating
Vanellus gregarius Sociable Lapwing, Status - Critically Endangered, A3bc+4bc ver 3.1: Pop. trend: decreasing
Vipera dinniki Caucasus Subalpine Viper, Status – Vulnerable, B1ab(iii,v) ver 3.1: Pop. trend: decreasing
Vipera erimansensis Armenian Steppe Viper, Status – Vulnerable, B1ab(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 B: Red Data Book of Azerbaijan

From the Country Study on Biodiversity and First National Report, the Republic of Azerbaijan, 2004

<p>Sporophyta – Ferns and horsetails <i>Dryopteris raddeana</i></p> <p>Gymnospermae - Gymnosperms <i>Pinus eldarica</i> <i>Pinus kochiana</i> <i>Juniperus foetidissima</i></p> <p>Angiospermae - Angiosperms Monocotyledonous – Monocotyledons <i>Nectaroscordum dioscoridis</i> <i>Nectaroscordum tripedale</i> <i>Galanthus caucasicus</i> <i>Sternbergia</i> <i>Sternbergia</i> <i>Sternbergia lutea</i> <i>Iridodictyum</i> <i>Iris acutiloba</i> <i>Iris camillae</i> <i>Iris elegantissima</i> <i>Iris grossheimii</i> <i>Iris iberica</i> <i>Iris lycotis</i> <i>Iris paradoxa</i> <i>Iris prilipkoana</i> <i>Fritillaria grandiflora</i> <i>Lilium ledebourii</i> <i>Merendera candidissima</i> <i>Muscari elegantissimum</i> <i>Ornithogalum hyrcanum</i> <i>Scilla atropatana</i> <i>Tulipa biebersteiniana</i> <i>Tulipa florenskyi</i> <i>Tulipa julia</i> <i>Tulipa karabachensis</i> <i>Tulipa schimidtii</i> <i>Tulipa eichleri</i> <i>Cephalanthera longifolia</i> <i>Himantoglossum formosum</i> <i>Limodorum abortivum</i> <i>Orchis purpurea</i> <i>Ophrys caucasica</i> <i>Steniella satyrioides</i> <i>Paeonia mlokoscwilschii</i> <i>Ammochloa palaestina</i> <i>Avena ventricosa</i> <i>Stipa pellita</i> <i>Triticum monococcum</i></p>	<p><i>Scorzonera grossheimii</i> <i>Scorzonera pulchra</i> <i>Scorzonera pusilla</i> Pall <i>Telekia speciosa</i> <i>Alnus subcordata</i> <i>Betula raddeana</i> <i>Physoptychis caspica</i> <i>Pseudovesicaria</i> <i>Buxus sempervirens</i> <i>Gleditsia caspia</i> <i>Campanula radula</i> <i>Euonymus velutina</i> <i>Anabasis brachiata</i> <i>Anabasis eugeniae</i> <i>Corylus colurna</i> <i>Diospyros lotus</i> <i>Rhododendron caucasicum</i> <i>Rhododendron luteum</i> <i>Euphorbia grossheimii</i> <i>Astragalus bakuensis</i> <i>Astragalus nachitschevanicus</i> <i>Astragalus kubensis</i> <i>Astragalus paradoxus</i> <i>Astragalus prilipkoanus</i> <i>Castanea sativa</i> <i>Quercus boissieri</i> <i>Quercus castaneifolia</i> <i>Platanus orientalis</i> <i>Gentiana lagodochiana</i> <i>Globularia trichosantha</i> <i>Parrotia persica</i> <i>Anogramma leptophylla</i> <i>Hypericum formosissimum</i> <i>Pterocarya pterocarpa</i> <i>Acantholimon schemachense</i> <i>Acantholimon tenuiflorum</i> Boiss. <i>Alcea kusariensis</i> <i>Alcea lenkoranica</i> <i>Alcea sachsachanica</i> <i>Marsilea strigosa</i> <i>Ficus hyrcana</i> <i>Albizia julibrissin</i> <i>Nelumbo caspica</i> <i>Nymphaea</i> <i>Nymphaea candida</i> <i>Calligonum bakuense</i></p>
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<p>Dicotyledonae – Dicotyledons</p> <p><i>Dorema glabrum</i> <i>Caropodium platycarpum</i> <i>Ferula caspica</i> <i>Ferula oopoda</i> <i>Ferula persica</i> <i>Ferula szovitsiana</i> <i>Smyrniopsis oneberi</i> <i>Stenotaenia macrocarpa</i> <i>Ilex hyrcana</i> Pojark. <i>Hedera</i> <i>Aristolochia bottae</i> <i>Cladochaeta candissima</i> <i>Gundelia</i> <i>Lactuca takhtadzhianii</i> <i>Pyrethrum komarovii</i> <i>Pyrethrum kotschyi</i> <i>Scorzonera grossheimii</i> <i>Scorzonera pulchra</i> <i>Scorzonera pusilla</i> Pall <i>Telekia speciosa</i> <i>Alnus subcordata</i> <i>Betula raddeana</i> <i>Physoptychis caspica</i> <i>Pseudovesicaria</i> <i>Buxus sempervirens</i> <i>Gleditsia caspia</i> <i>Campanula radula</i> <i>Euonymus velutina</i> <i>Anabasis brachiata</i> <i>Anabasis eugeniae</i> <i>Corylus colurna</i> <i>Diospyros lotus</i> <i>Rhododendron caucasicum</i> <i>Rhododendron luteum</i> <i>Euphorbia grossheimii</i> <i>Astragalus bakuensis</i> <i>Astragalus nachitschevanicus</i> <i>Astragalus kubensis</i> <i>Astragalus paradoxus</i> <i>Astragalus prilipkoanus</i> <i>Castanea sativa</i> <i>Quercus boissieri</i> <i>Quercus castaneifolia</i> <i>Platanus orientalis</i> <i>Gentiana lagodochiana</i> <i>Globularia trichosantha</i> <i>Parrotia persica</i> <i>Pyrethrum komarovii</i> <i>Pyrethrum kotschyi</i> Phylum Chordata Pisces - fish</p>	<p><i>Calligonum polygonoides</i> <i>Primula juliae</i> Kusn <i>Cyclamen elegans</i> <i>Punica granatum</i> <i>Anemone kuznetzowii</i> <i>Frangula grandiflora</i> <i>Cotoneaster saxatilis</i> <i>Laurocerasus</i> <i>Padus avium</i> <i>Pyrus boissierana</i> <i>Pyrus eldarica</i> <i>Pyrus hyrcana</i> <i>Rosa pulverulenta</i> <i>Pyracantha coccinea</i> <i>Rosa karjaginii</i> <i>Rosa nisami</i> <i>Rosa canina</i> <i>Salix kuznetzowii</i> <i>Atropa caucasica</i> <i>Staphylea colchica</i> <i>Taxus baccata</i> <i>Daphne transcaspica</i> <i>Stelleropsis</i> <i>Trapa hyrcana</i> <i>Zelkova carpinifolia</i> <i>Valeriana alliarifolia</i> <i>Vitis sylvestris</i> <i>Woodsia alpina</i> <i>Lactuca takhtadzhianii</i> <i>Salsola tamamsahjanae</i> <i>Zeravschania pauciradiata</i></p> <p>Phylum: Mollusca Class: Gastropoda Order: Stylommatophora Family: Vertiginidae <i>Vertigo angustior</i> <i>Vertigo moulinsiana</i></p> <p>Phylum Arthropoda Class Insecta Order Hymenoptera Family Apoidae <i>Bombus portchinsky</i> <i>Bombus mlokosievitzii</i> <i>Bombus persicus</i> Order: Odonata Family: Cordulegastridae <i>Cordulegaster mzymtae</i> Family: Gomphidae <i>Onychogomphus assimilis</i> Order Coleoptera</p>
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<p>Class Cephalaspidomorpha Order Petromyzontiformes Family Petromyzontidae <i>Caspiomyzon wagneri</i> Class Actinopterygii - ray-finned fishes Order Acipenseriformes Family Acipenseridae - Sturgeons <i>Acipenser nudivetnris</i></p> <p>Order Salmoniformes Family Salmonidae - Salmonids <i>Salmo trutta fario</i> Order Clupeiformes Family Clupeidae (Herrings, shads, sardines) <i>Clupeonella cultriventris</i></p> <p>Order Cypriniformes Family Cyprinidae (Minnows and carp) <i>Abramis sapa</i> <i>Pelecus cultratus</i> - Order Perciformes Family Percidae (Perches) <i>Lucioperca marine</i></p> <p>Class Amphibia - Amphibians Order Caudata Family Salamandridae - Salamanders <i>Triturus vulgaris</i> <i>Triturus cristatus</i> Order Anura Family Pelobatidae <i>Pelobates syriacus</i> Family Hylidae <i>Hyla arborea</i> Family Pelodytidae <i>Pelodytes</i> Family Bufonidae - Toads <i>Bufo verucosusma</i></p> <p>Class Reptilia - Reptiles Order Testudines Family Testudinidae <i>Testudo graeca</i> Class Aves - Birds Order Pelecaniformes Family Pelecanidae - Pelicans <i>Pelecanus onocrotalus</i> <i>Pelecanus crispus</i> Family Phalacrocoracidae Order Ciconiiformes Family Threskiornithidae</p>	<p>Family Cerambycidae (Longhorned Beetles) <i>Rosalia alpina</i> <i>Mallosia scoritzi</i> <i>Purpuricenrus talyschensis</i> <i>Dorcadion talyschense</i> <i>Parandra caspia</i> Family Carabidae (Ground Beetles) <i>Carabus clypeatus talyschensis</i> <i>Carabus scabrosus caucasicus</i> <i>Calosoma sycophanta</i> <i>Megacephalus euphraticus</i> Family Buprestidae (Jewel Beetles) <i>Ancylocheria salomoni</i> Order Lepidoptera – Butterflies and moths Family Papilionidae <i>Parnassius apollo</i> <i>Parnassius nordmanni</i> <i>Zerynthia cericyi caucasica</i> <i>Papilio alexanor orientalis</i> <i>Anthocharis gruneri</i> <i>Zegris menestho</i> <i>Colias thisoa</i> <i>Colias caucasica</i> <i>Colias aurorina</i> <i>Colias chlorocoma</i> <i>Danais chrysippus</i> <i>Pararge adrastoides</i> <i>Melanargia hylata</i> <i>Satyrus alpina</i> <i>Thaleropsis jonia</i> <i>Argynnis alexandra</i> <i>Heodes ochimus</i> <i>Tomares romanovi</i> <i>Manduca atropos</i> <i>Daphnis nerii</i> <i>Rethera komarovi</i> <i>Hippotion</i> <i>Brahmaea christophi</i> <i>Axiopoena maura</i> <i>Zygaena Tamara</i> Family: Lycaenidae <i>Maculinea nausitibous</i> Order Squamata Suborder Sauria (Lacertidae)- Lizards Family Agamidae - Agamas <i>Trapelus ruderatus</i> <i>Phrynocephalus helioscopus</i> Family Scincidae - Skinks <i>Mabuya aurata</i> <i>Ablepharus bivittatus</i></p> <p>Suborder Ophidia (Serpentes) – Snakes</p>
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<p><i>Platalea leucorodia</i> Family Ciconiidae <i>Ciconia nigra</i> Order Ciconiformes Family Phoenicopteridae <i>Phoenicopterus ruber</i> Order Anseriformes Family Anatidae <i>Branta ruficollis</i> <i>Cygnus olor</i> <i>Cygnus columbianus bewickii</i> <i>Marmaronetta angustirostris</i></p> <p>Order Falconiformes Family Accipitridae <i>Pandion haliaetus</i> <i>Haliaeetus</i> <i>Accipiter gentilis</i> <i>Accipiter badius</i> <i>Aquila nipalensis</i> <i>Aquila heliaca</i> <i>Aquila chrysaetus</i> <i>Gypaetus barbatus</i> <i>Circus gallicus</i> <i>Circus macrourus</i></p> <p>Order Charadriiformes Family Charadriidae <i>Vanellus gregarius</i> Family Glareolidae <i>Glareola nordmanni</i> Order Columbiformes <i>Pterocles orientalis</i> Order Passeriformes Family Turdidae <i>Irania gutturalis</i> Family Parinae <i>Parus hyrcanus</i> <i>Rhodopechys githaginea</i> Order Artiodactyla Family Bovidae <i>Gazella subgutturosa</i> <i>Capra cylindricornis</i> <i>Capra aegagrus</i> <i>Rupicapra rupicapra</i> <i>Ovis orientalis</i></p>	<p>Family Colubridae - Colubrids <i>Coluber longissimus</i> <i>Rhynchocalamus melanocephalus</i> <i>Vipera raddei raddei</i></p> <p>Family Falconidae <i>Falco cherrug</i> <i>Falco peregrinus</i></p> <p>Order Galliformes Family Tetraonidae <i>Tetrao mlodosieniczii</i> <i>Tetraogallus caspicus</i> <i>Tetraogallus caucasicus</i> Family Phasianidae <i>Francolinus francolinus</i> <i>Phasianus colchicus talischensis</i> Order Gruiformes Family Rallidae <i>Porphyrio porphyrio</i> Family Otididae <i>Otis tarda.</i> <i>Otis tetrax</i> <i>Chlamydotis undulata</i> Class Mammalia – Mammals Order Chiroptera – Bats <i>Rhinolophus euryale</i> <i>Rhinolophus blasii</i> <i>Miniopterus schreibersi</i> <i>Tadarida teniotis</i> Order Carnivora Suborder Feliformia Family Felidae – Cats <i>Panthera tigris virgata*</i> <i>Lynx lynx</i> <i>Panthera pardus</i> <i>Felis silvestris</i> <i>Otocolobus manul</i> Sub-order Pinnepedia Family Phocidae Family Hyaenidae – Hyaenas <i>Hyaena hyaena</i> Family Mustelidae – Mustelids <i>Vormela peregusna</i></p>
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*The last recorded Turan tiger was killed in the Talysh region (Prishib village) in 1932. Reports of tigers in the Lenkoran region persisted since 1950, however there was thought to be some confusion with observation of leopards, and the tiger was listed in the Red Book subsequent to its extinction in Azerbaijan

ANNEX C: Information on Fish in Azerbaijan

1. List of exotic species of fishes in Azerbaijan

Salmonidae:

1. *Stenodius leucichthys* (Güldenstädt)
2. *Salmo gairdneri* Richardson
3. *Oncorhynchus keta* (Walbaum)
4. *Oncorhynchus gorbuscha* (Walbaum)

Cyprinidae:

5. *Carassius auratus gibelio* (Bloch)
6. *Carassius carassius* (Linnaeus)
7. *Ctenopharyngodon idella* (Valenciennes)
8. *Hypophthalmichthys molitrix* (Valenciennes)
9. *Aristichthys nobilis* Richardson

Gasterosteidae:

10. *Gasterosteus aculeatus* Linnaeus

Mugilidae:

11. *Liza auratus* Risso,
12. *Liza saliens* Risso

Four of these species [*Stenodius leucichthys*, *Carassius auratus gibelio*, *Carassius carassius* and *Gasterosteus aculeatus*) arrived in Azerbaijan occasionally together with introduced species or along the Volgo-Don canal from the Black. All other species were purposely introduced for their food value.

2. Commercial species of fishes of Azerbaijan

Scientific name	English name
<i>Caspiomyzon wagneri</i> (Kessler)	Caspian Lamprey
<i>Huso huso</i> (Linne)	Beluga
<i>Acipenser guldenstadti</i> Brandt	North Caspian Sturgeon
<i>Acipenser persicus</i> Borodin	South Caspian Sturgeon
<i>Acipenser nudiventris derjavini</i> Borsenko	Barbel Sturgeon
<i>Acipenser stellatus</i> Pallas	Starred Sturgeon
<i>Clupeonella delicatula caspia</i> Svetovidov	Common Sprat (Kilka)
<i>Clupeonella grimmi</i> (Kessler)	Big-eyed Sprat (Kilka)
<i>Clupeonella engrauliformis</i> (Borodin)	Anchovy Sprat (Kilka)
<i>Alosa caspia caspia</i> (Eichwald)	Caspian Herring (Shad)
<i>Alosa saposhnikovi</i> (Grimm)	Big-eyed Herring (Shad)
<i>Alosa brashnikovii brashnikovii</i> (Borodin)	Brashnikov's Herring (Shad)
<i>Alosa kessleri kessleri</i> (Grimm)	Black-backed Herring (Shad)
<i>Salmo trutta caspius</i> Kessler	Caspian Salmon
<i>Stenodus leucichthys</i> (Guldenstadt)	Inconnu
<i>Esox lucius</i> Linne	Pike
<i>Rutilus rutilus kurensis</i> Berg	Roach
<i>Rutilus frisii kutum</i> (Kamensky)	Kutum
<i>Aspius aspius</i> (Linne)	Caspian Asp
<i>Barbus brachycephalus caspicus</i> Berg	Caspian Barbel
<i>Chalcalburnus chalcoides</i> (Guldenstadt)	Shemaya
<i>Carassius carassius</i> (Linne)	Crucian Carp
<i>Cyprinus caprio</i> Linne	European Carp
<i>Abramis brama orientalis</i> Berg	Eastern Bream
<i>Vimba vimba persa</i> (Pallas)	Vimba
<i>Ctenopharyngodon idella</i> (Valenciennes)	
<i>Hypophthalmichthys molitrix</i> (Valenciennes)	Silver Carp
<i>Silurus glanis</i> Linne	Catfish
<i>Liza auratus</i> Risso	Golden Gray Mullet
<i>Liza saliens</i> Risso	Leaping Gray Mullet
<i>Stizostedion lucioperca</i> Linne	Fresh Water Sander

3. Fish catches in the Azerbaijan Sector of the Caspian Sea

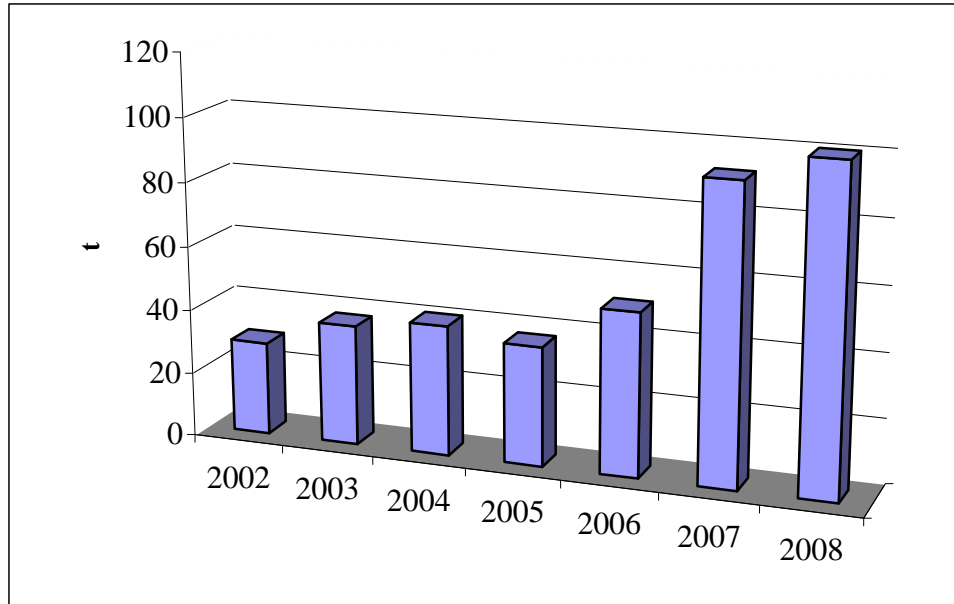


Figure 1. Total catch in tons of Cyprinidae (*Carpus* and similar fishes) in 2002-2008

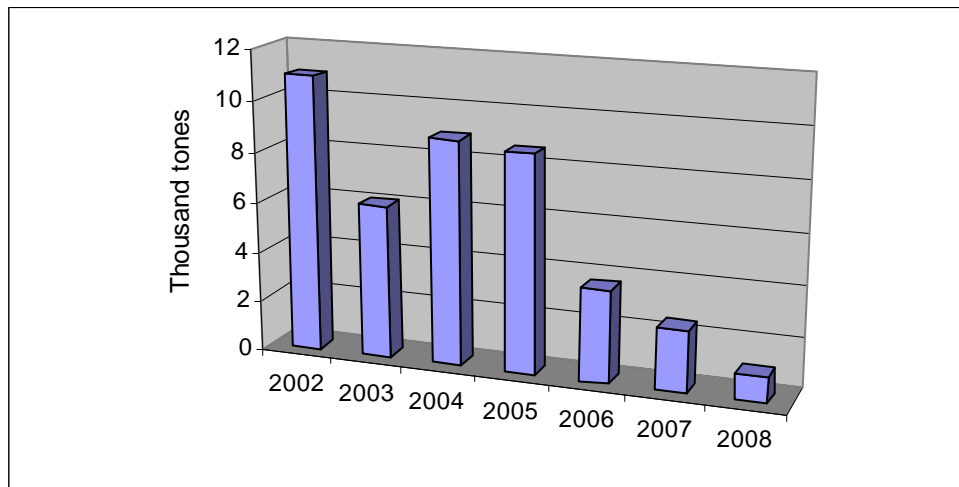


Figure 2. Total catch (in thousand tons) of Kilka (*Clupeonella* spp)

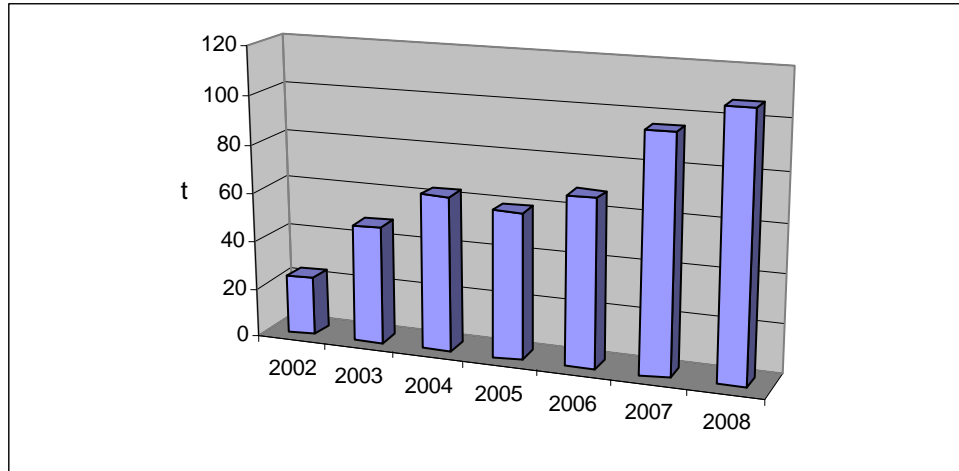


Figure 3. Total catch in tons of Herring (*Clupea spp.*)

Note: Data on sturgeon was not available, but is said by the MENR to meet and not surpass the yearly quota of 80 tons allotted to Azerbaijan.

4. Release of fingerlings from Azerbaijan fish breeding factories

There are twelve fish hatcheries run by the Government of Azerbaijan, that produce juvenile fish (fingerlings) that are released below dams that restrict normal breeding activities of these fish. The below charts indicate the number of fingerlings of major commercial fish released yearly.

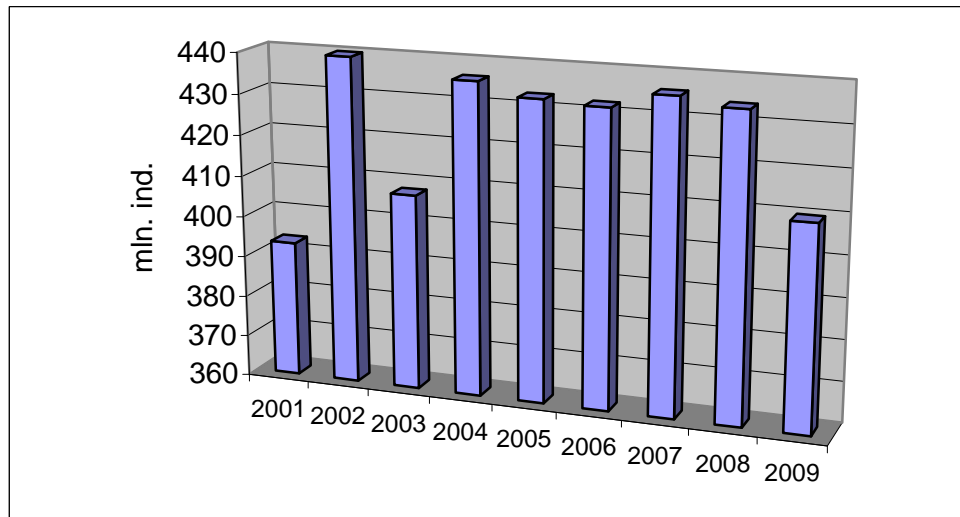


Figure 4. Release of fingerlings of Ciprinidae in 2001-2009 (mln ind.)

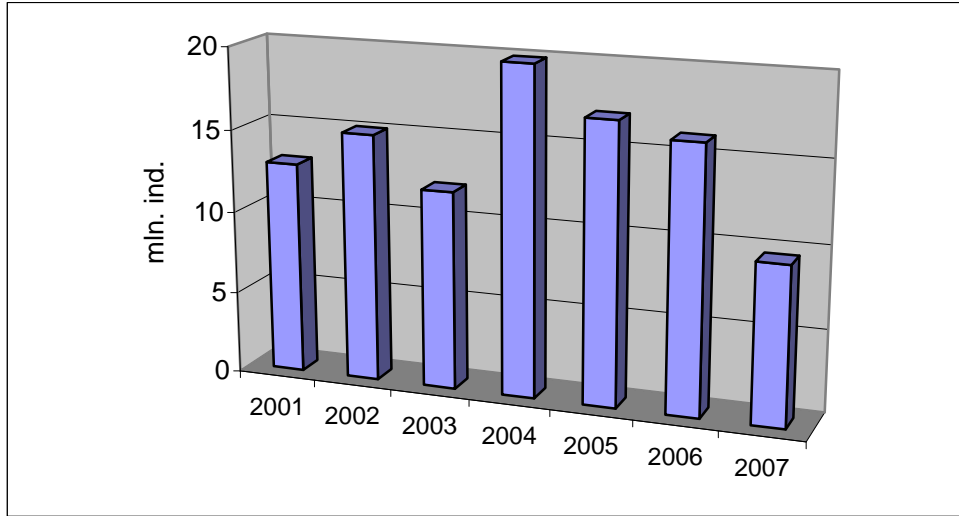


Figure 5. Release of Acipenseridae in 2001-2007 (mln ind.)

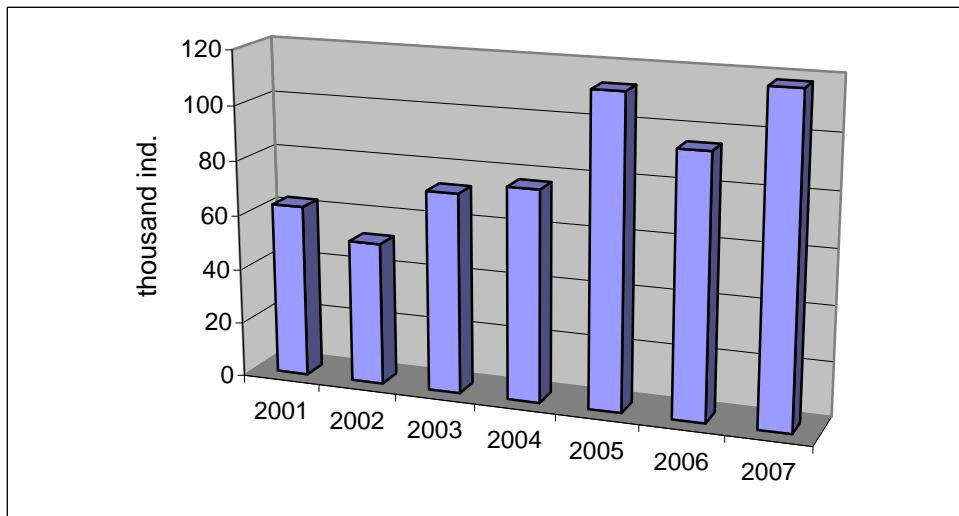
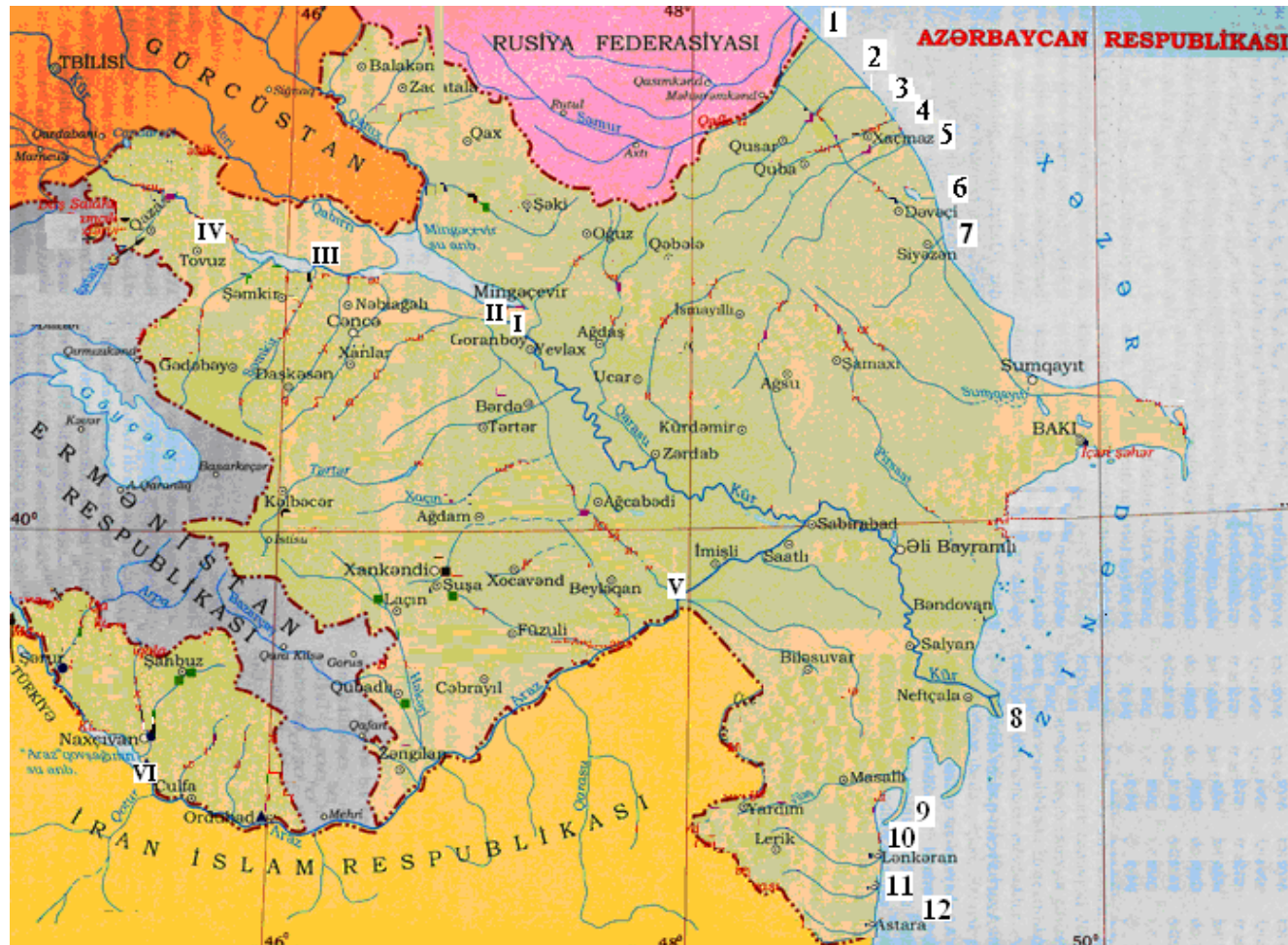


Figure 6. Release of salmon fingerlings (thousand ind.)

Map I: Rivers, lagoons and gulfs important for natural breeding of fishes in modern conditions of Azerbaijan



Legend: 1- Samur River, 2-Gusarchay r., 3-Gudialchay r., 4-Garachay r. 5-Velvelichay r. 6- Devechi lagoon (Lake Agzybir), 7-Atachay r., 8-Kur r. 9- Great and Lesser Gyzyllagach Gulfs,10-Lenkeranchay r., 11-Tengerudchay r., 12-Astarachay r.
Main dams of water reservoirs which prevent normal breeding of fishes in rivers: I. Varvara, II.Mingechevir, III. Shemkir, IV Yenikend (Tovuz), V. Bahramtapa–Nakhchivan

ANNEX D: Protected Areas in Azerbaijan

Map 2: Protected Areas of Azerbaijan



Table 1: National Parks and Strict Nature Reserves. Information from: Ministry of Ecology and Natural Resources, 2008, “Protected Areas in Azerbaijan” and www.eco.gov.az with “Visitors permitted” and “Notes” columns provided by authors of the Azerbaijan Biodiversity Analysis, 2009.

National Parks (IUCN Category II)	Size (ha)	Est. Date*	Major Habitats	Representative Species	Number of staff	Budget in AZN	Visitors permitted?	Note
1. Absheron N.P.	783	2005	sea coast	Caspian seals, birds	16	25359	Sometimes	often closed
2. Altiagac N.P.	11035	(1990) 2004	mountain forests	hornbeam, beech, bear, lynx	40	81787	Yes	
3. Shirvan N.P.	54373	(1969) 2003	semi desert, wetlands	gazelle, flamingo, migr.birds	55	62122	Yes	
4. Agh Gol N.P.	17924	(1964) 2003	semi desert, wetlands	many birds, reed cat	42	73398	No**	Ramsar Site
5. Hyrcan N.P.	21435	(1930) 2004	Talysh Mt. Relict forest	endemic plants, leopards	45	77538	Yes	
6. Ordubad N.P.	12131	(1969) 2003	semi arid mountains	mouflan, Bezoar goat, leopard	-	-	No**	near ceasefire zone
7. Shahdagh N.P.	115895	2006	high mts and forests	endemic plants, birds, tur	-	-	No**	
8. Goy Goi N.P.	12755	(1925) 2008	Mid-altitude mts	oaks, maples, bear, marten	33	66285	No**	
Total land in N.P.s	246332					386489		
Strict Nature Reserves (IUCN Category I)	Size (ha)	Est. Date*	Major Habitats	Representative Species	Number of staff	Budget in AZN	Visitors permitted?	Note
1. SNR Ghizil-Agaj	88360	1929	saline, fresh wetlands	migratory birds, fish	77	116733	No**	Ramsar Site
2. SNR Pirgulu	4274	1968	high plateau	hornbeam, lynx, boar	29	39748	No**	

3. SNR Ismayilli	16740	(1981) 2003	Forests	hornbeam, lynx, boar	30	67624	No**	
4. SNR Ilisu	17381	(1987) 2003	mountain forests	hornbeam vultures, bear	37	67692	No**	
5. SNR Zakatala	47349	1929	forests, alpine meadows	Yew, birch, bear, chamois	42	82751	No**	
6. SNR Turyanchay	22488	(1958) 2003	gravel formations	pistachio, bear, vultures	43	44602	No**	
7. SNR Edlar Shami	1686	(1910) 2004	semi desert, steppe	eldar pine, chucar, boar	15	20322	No**	
8. SNR Shahbuz	3139	2004	Forests	oak, hawthorn, wolf, bear	No data	No data	No**	
9. SNR Garayazi	9658	(1978) 2003	Floodplain forests,steppe	willow, acacia, deer, badger	No data	No data	No**	
10. SNR Korchay	4834	(1961) 2008	semi desert	wormwood, eagles, gazelle	No data	No data	No**	
11. SNR Mud Volcanos of Baku- Absheron Peninsula	20000	(1982) 2007	mud and rock	sparse vegetation	No data	No data	No**	Geological interest
12. SNR Gara Gol	240	1987	glacial lake	clover, buttercup	No data		No**	Occupied By Armenia
13. SNR Basitchay	107	1974	Riverbed	Eastern plane tree,juniper,	No data		No**	Occupied by Armenia
14. SNR Shirvan	6232	1969		See Shirvan NP	See Shirvan NP	See Shirvan NP	No**	Incorporated in Shirvan N.P.
Total land in SNRs.	222727					568260		

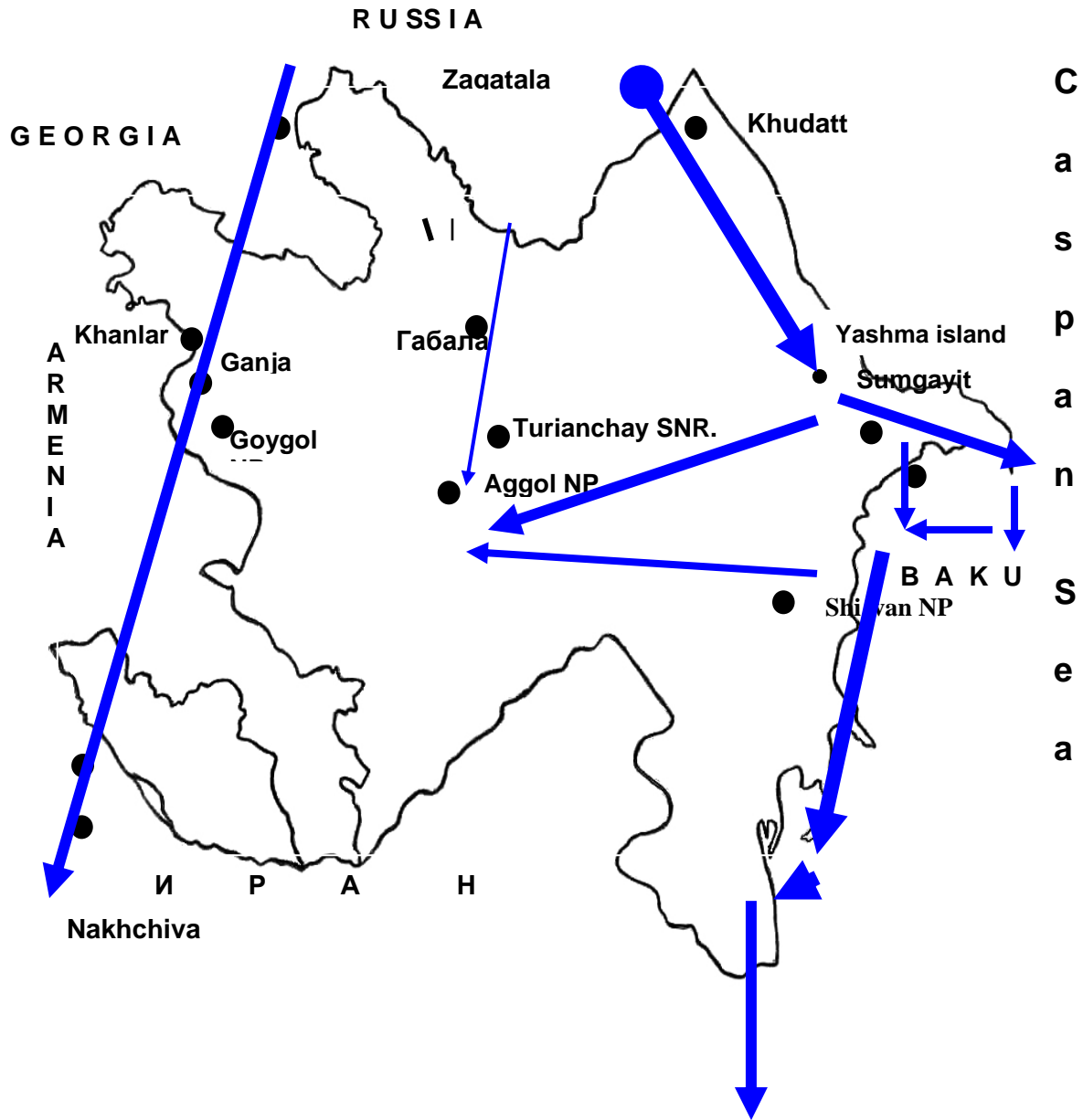
* Dates include when the protected area was first established in (parenthesis) and when it was most recently modified, by enlarging or changing to national park status. **Visitors are not permitted where noted, except by a personal letter from the Minister of Ecology and Natural Resources, obtained far in advance of projected visit, and often refused.

Table 2: State Nature Sanctuaries and State Game Reserves (from MENR website: www.eco.gov.az)

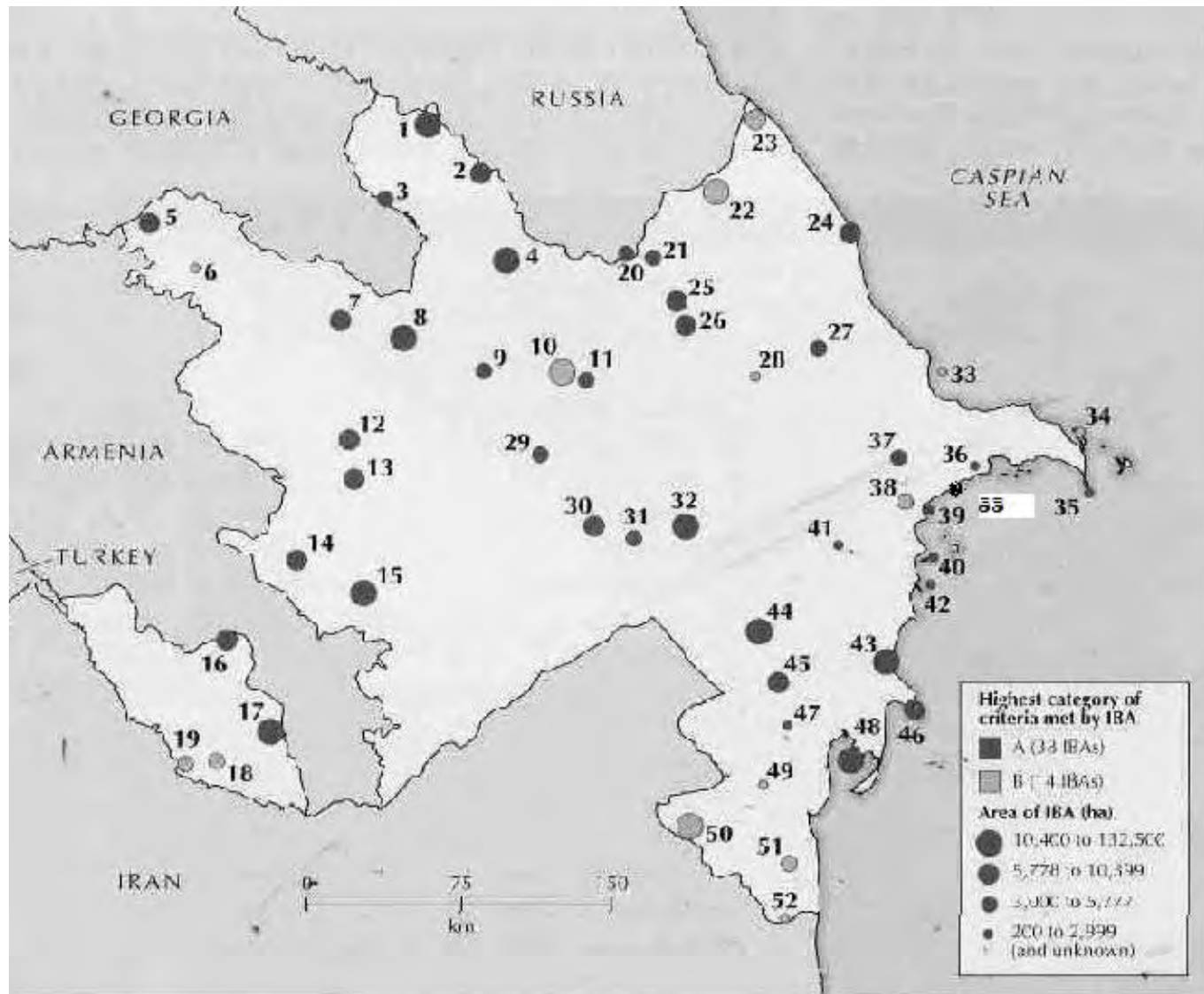
State Nature Sanctuaries (IUCN category III and lesser)	Date Established	Size in hectares	Comments
1. Zuvand	1969	15000	
2. Bandovan	1961	4930	
3. Ordubad	1969	27869	
4. Kichik Gizilagach Korfezi	1978	10700	
5. Ismailli	1969	23438	
6. Shaki	1964	10350	
7. Gusar	1964	15000	
8. Shamkir	1964	10000	
9. Barda	1966	7500	
10. Gil adasi	1964	400	
11. Garayazi-Aghstafa	1964	11970	
12. Gubadli	1969	20000	Occupied by Armenia
13. Lachin	1961	21370	Occupied by Armenia
14. Gizilja (Gadabay distr.)	1984	5135	
15. Dashalti	1981	450	Occupied by Armenia
16. Arazboyu (Karabakh region)	1993	2200	Occupied by Armenia
17. Gabala	1993	39700	
18. Gakh	2003	36836	
19. Hirkan	2003	2252	
20. Arazboyu (Nakhchivan AU. Rep.)	2005	9118	
21. Zagatala	2008	6657	
22. Korchay	1961	10200	
Total land in SN Sanctuaries		291075	
State Game Reserves (IUCN Category III-IV)			
Samukh		40000	
Ulduz (Shamakxi district)		5300	
Total lands in SGR		45300	

ANNEX E: Bird Migratory Routes and Important Bird Areas

Map 3: Bird migratory routes in Azerbaijan



Map 4: Important Bird Areas (IBA) in Azerbaijan



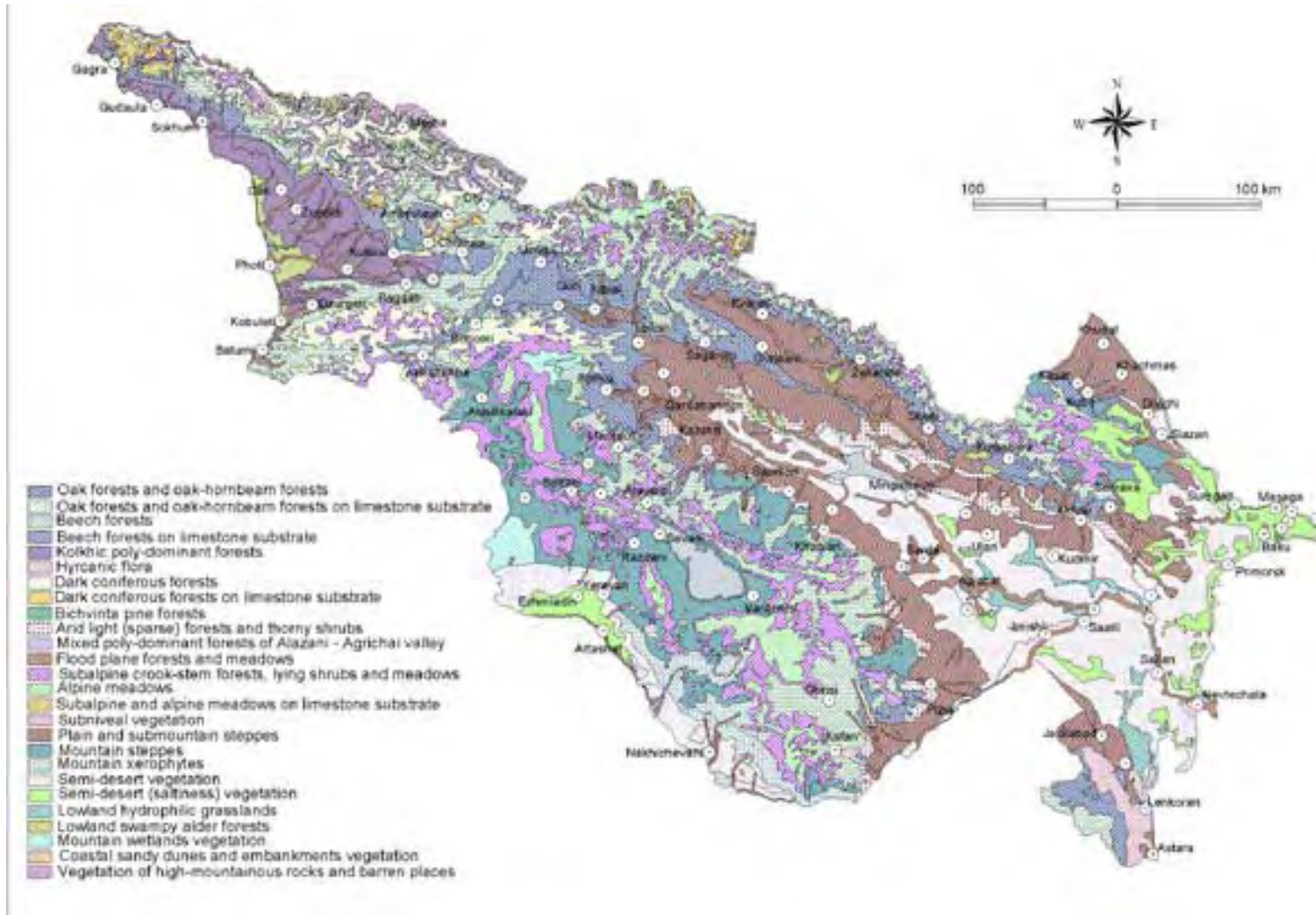
	Category	Criterion
Global	A1. Species of global conservation concern	The site regularly holds significant numbers of a globally threatened species, or other species of global conservation concern.
	A2. Restricted-range species	The site is known or thought to hold a significant component of the restricted-range species whose breeding distributions define an Endemic Bird Area (EBA) or Secondary Area (SA).
	A3. Biome-restricted species	The site is known or thought to hold a significant assemblage of the species whose breeding distributions are largely or wholly confined to one biome.
	A4. Congregations	(i) The site is known or thought to hold, on a regular basis, >1% of a biogeographic population of a congregatory waterbird species.
		(ii) The site is known or thought to hold, on a regular basis, >1% of the global population of a congregatory seabird or terrestrial species.
(iii) The site is known or thought to hold, on a regular basis, >20,000 waterbirds or >10,000 pairs of seabird of one or more species.		
(iv) The site is known or thought to be a "bottleneck" site where at least 20,000 storks (Ciconiidae), raptors (Accipitriformes and Falconiformes) or cranes (Gruidae) regularly pass during spring or autumn migration.		
European	B1. Congregations	(i) The site is known or thought to hold at least 1% of a flyway or other distinct population of a waterbird species.
		(ii) The site is known or thought to hold at least 1% of a distinct population of a seabird species.
		(iii) The site is known or thought to hold at least 1% of a flyway or other distinct population of other congregatory species.
		(iv) The site is a "bottleneck" site where over 5,000 storks, or over 3,000 raptors or cranes regularly pass on spring or autumn migration.
	B2. Species with an unfavorable conservation status in Europe	The site is one of the "n" most important in the country for a species with an unfavourable conservation status in Europe (SPEC 2, 3) and for which the site-protection approach is thought to be appropriate.
	B3. Species with a favorable conservation status in Europe	The site is one of the "n" most important in the country for a species with a favourable conservation status in Europe but concentrated in Europe (SPEC 4) and for which the site-protection approach is thought to be appropriate.

Modern code	SU time number	Name	Administrative district	Area in ha	Criteria of IBA
001	SU075	Zagatala	Zagatala, Balakan	23,844	A1,A3
002		Ilisu	Gakh	9,345	A1
001		Alazan (Ganikh) river valley	Zagatala, Balakan, Gakh	5,000	A1, B2
004		Sheki upland	Sheki	10,400	A1
005	SU073	Garayazi	Gazakh, Aghstafa	10,000	A1
005-		Agstafa-chai valley	Gazakh	200	B2
007		Shamkhir area	Shamkhir	10,000	A1, B2
008		Korchai	Samukh, Goranboy	15,000	A1, B2
009		Varvara reservoir	Yevlakh	4,000	At
010	SU 081	Turianchay	Agdash, Yevlakh, Oguz, Gabala	12,600	B2
011		Gekchai Bozdag	Goychay, Gabala	5,000	A1, B2
012	SU074	Goygol	Khanlar	7,131	A1,A3
013		Giamyshdag	Khanlar (Karabakh region)	8,500	A1,A3, 82
014		Dalidag	Kelbadjhar, Lachin	10,000	A3, B2
015		Lachin	Lachin	20,000	A1
016		Shahbuz	Nakhchivan Aut.Rep., Shahbuz	7,000	A3, B2
017		Ordubad	Nakhchivan Aut.Rep., Ordubad .	40,000	A3, B2
018		Llandag	Nakhchivan Aut.Rep., Babek	4,000	B2
019		Negramdag	Nakhchivan Aut.Rep., Babek	3,500	B2
020		Bazarduzu	Guba, Gabala, Gusari	4,000	A1,A3
021		Shakhdag	Gusar	3,500	A1,A3

022		Gusar	Gusar	15,000	B2
023		Samur delta	Khachmas	6,000	B2
024		Aghibir	Devechi	7,000	A4iii, A1, A4i, B1i, B2
025		Babadag	Ismailly, Guba	9,000	A1,A3
026		Ismailly	Ismailly	5,778	A1
027		Altyagach	Khizi	5,500	A1, B2
028	SU079	Pirgulu	Shamakhi	1,520	B2
029		Barda tugai forest	Agdash, Barda	4,000	A1,B2
030	SU076	Aggol	Agjabedy	9,173	A1, A4i, B1i, B2
031		Bozgobu	Agjabedy, Beyilagan, Imishll	4,000	A4iii
032		Sarysu	Imishli	20,000	A1, A4I, B1i, B2
033		Yashma Island	Absheron	200 B1i	
034		Absheron archipelago (north) and Pyrallahy Bay	Baku	1,000	B1i
035		Shah Cape (Shahdili)	Baku	500	A4i, A4iii, B1i
036		Red lake and other lakes of Absheron peninsula	Great Baku, Absheron	—	A1, A4i, B1i
037		Gargabazardag and Gushgaya	Gobustan	3,000	A1
038		Gobustan	Garadag, Gobustan	5,000	B3
039		Sangachal Bay	Garadag	1,000	A4i, A4iii, B1i
040		Gil island	Garadag	200	A4i,B1i,B2
041 -		lake Hajikabul	Shirvan city, Ajigabul district	1,500	A1, A4i, B1i
042		Pirsagat islands and Los island	Garadag	250	A4i,B1i,B2
043	SU078/080	Shirvan (Lake in Shirvan NP)	Salyan, Neftechala	26,000	A1, A4i, A4iii, B1i, B2

044		Mugan steppe	Salyan, Imishli, Pushkin, Saatly, Sabirabad	100,000	A1
045		Mahmudchala	Pushkin, Jalilabad, Masally	10,000	A1, A4i, A4iii, B1i
046		Kur river delta	Neftechala	10,000	A1, A4i, B1i
047		AghChala (Novogolovka-chala)	Salyan, Masally	2,500	A1, A4i, B1i
048	SU077	Great Gyzylagach Gulf	Lenkeran	132,500	A1, A4i, B1i
049		Vilyashchay valley	Lenkeran, Yardymly	1,000	B2
050		Zuvand upland	Yardymly, Lerik	15,000	B2
051		Hirkan forest	Astara, Lenkeran	4,500	B2
052		Astarachai valley	Astara	2,000	B2, B3
053		Heydar Aliyev Factory “Shelf”	Garadag	5,000	A1, A4i, B1i

ANNEX F: Flora of South Caucasus



ANNEX G: Important Biodiversity Areas in Azerbaijan



Priority Conservation Corridors (Dark Green): 26 Lagodekhi-Zagatala--Alazani-Ganykh; 27 Sarybash—Alazani-Ganykh; 29 Lagodekhi-Zagatala-Sarybash-Ismaily-Shadagh; 31 Samur-Yalama-Aghzibir Lake; 32 Parmbak-Sevan-Mount Gyamysh; 39 Noravank-Bichanek; 43 Mount Gyamysh-Meghri-Arasbaran; 45 Iori-Mingechevir-Gobustan-Hajigabul; 46 Aghzibir Lake-Govustan-Absheron; 47 Gobustan--Hajigabul-Shirvan; 48 Gobustan-Absheron-Shirvan; 49 Kura-Araz Valley-Makhmud Chala; 50 Kura-Araz Valley-Arak Valley; 51 Makhmud Chala-Gyzylaghaj; 55 Gyzylaghaj-Talish-Zuvand

Priority Conservation Areas (Light Green): 17 Sarybash; 19 Samur-Yalama; 20 Aghzibir Lake; 21 Ismailly-Shahdagh; 22 Iori-Mingechevir; 29 Mount Gyamysh; 30 Varvara-Barda; 31 Govustan-Hajigabul; 32 Gobustan-Absheron; 34 Makhmud Chala; 35 Gyzyl-Agach; 36 Kura-Araz Valley; 37 Talish-Zuvand; 43 Zangezur

Note: The Ecoregional Conservation Plan for the Caucasus was developed in 2006 as collaborative effort led by WWF, with involvement of other international organizations and donors. One hundred forty experts from six countries (Armenia, Azerbaijan, Georgia, Iran, Russia and Turkey) participated in the process representing scientific, governmental and non-governmental organizations. This map was part of the outcome based on biological, political and socioeconomic criteria including threats, species range and occurrence, gap analyses and expert consensus.

ANNEX H: Biodiversity Conventions that Azerbaijan is a Party to

Name	Date	Place of Adoption	Approved by Azerbaijan
1. International Plant Protection Convention	1951	Rome	2000
2. Convention on Wetlands of International Importance especially as Waterfowl Habitat	1971	Ramsar	2001
3. Convention concerning the Protection of the World Cultural and Natural Heritage	1972	Paris	1991
4. Convention on International Trade in Endangered Species of Wild Fauna and Flora	1973	Washington	1998
5. Convention on the Conservation of European Wildlife and Natural Habitats	1979	Bern	1999
6. Convention on Long-Range Transboundary Air Pollution	1979	Geneva	2002
7. Vienna Convention for the Protection of the Ozone Layer	1985	Vienna	1996
8. Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	1989	Basel	2001
9. United Nations Framework Convention on Climate Change	1992	New York	1995
10. Convention on Biological Diversity	1992	Rio de Janeiro	2000
11. International Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa	1994	Paris	1998
12. Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters	1998	Aarhus	1999
13. Convention on the Protection and Use of Transboundary Watercourses and International Lakes	1999	London	2000
14. Stockholm Convention on Persistent Organic Pollutants	2001	Stockholm	2003
15. Convention on Environmental Impact Assessment in a Transboundary Context	1991	Espoo	1999
16. The Framework Convention for the Protection of the Marine Environment of the Caspian Sea	2003	Teheran	2006
17. Convention on the Transboundary Effects of Industrial Accidents	1992	Helsinki	2004

ANNEX I: Donor Activities Relating to Biodiversity in Azerbaijan

Donor	Description	Geographic Focus	Budget/Notes	Dates
Critical Ecosystems Partnership Fund	WWF Grant program for national and international NGOs to conserve Caucasus biodiversity	Caucasus	\$6,000,000 for the Caucasus Ecoregion. Of this Azerbaijan receives only 10% of the total sum for 26 small projects and 1 big project.	2005-2009
WB/GEF, Japan and Azerbaijan Government	Creation of Shahdag National Park	Azerbaijan	\$17,000,000 allocated but only less than 10% of total sum was spent.	2006-2009
OSCE	Civic Action for Security and Environment (CASE) Programme for Azerbaijan	Azerbaijan	Up to \$15,000 per grant.	Start 2009
Caspian Environmental Programme (CEP)	MicroEnvironment Grants Programme	Azerbaijan, Russia, Iran, Kazakhstan, Turkmenistan	Up to \$3000 per grant	Permanent
CEP	Matched Small Grants Programme	Azerbaijan, Russia, Iran, Kazakhstan, Turkmenistan	\$10,000-50,000 per grant	Permanent
Germany (GTZ)	Sustainable Management of Biodiversity in South Caucasus	Azerbaijan, Georgia, Armenia	\$20,000,000 (only a small amount used so far in Azerbaijan to cover staff salary and some training activities.)	2009-2016
Germany (Embassy)	Programme of small grants for NGO	Azerbaijan	Up to \$6,000 per project just for equipment purchase	Permanent
Norway (Embassy)	Programme of small grants (mainly for support of democracy but sometime for ecological projects)	Azerbaijan	Small grants up to \$10,000 USD per grant	Permanent

ANNEX J. Matrix of Threats Identified and Actions Needed to Address Them

Threats Identified in 2009	Actions Necessary to Address Threats
Root Causes	
<p>A. Bad management and corruption at all levels constrains conservation activities and effectiveness</p>	<p>All activities of the Ministry of Ecology and Natural Resources (MENR) need to be opened for inspection and visible to citizens, donors and all others. Light must be shed on the job hiring process, and positions need to be subject to open competition.</p>
	<p>All national parks, strict nature reserves and other protected areas need to have management plans in place that follow IUCN Protected Area guidelines. All national parks and protected areas need to be opened up for research and monitoring and well-managed tourism. Salaries of rangers and scientific staff need to be greatly increased. Experienced international specialists need to be involved in work in every protected area.</p>
<p>B. Reliance of poverty-stricken rural Azeris on the often unsustainable use of biodiversity to support their families</p>	<p>More community-based programs are needed around PAs and in fragile landscapes to provide the rural poor with more income-making opportunities.</p>
	<p>Reliable gas supplies need to be provided to communities to decrease their reliance on fuel wood collection for heating and cooking.</p>
	<p>The Environmental Impact Assessment (EIA) process in Azerbaijan needs to be more open allowing wide discussion with specialists and the public especially in the case of major habitat changes like drying of lakes, irrigation schemes, new construction projects, etc.</p>
<p>C. Lack of good data to effectively manage natural resources and biodiversity</p>	<p>A National Biodiversity Monitoring and Information Management System needs to be modernized and also include new rules requiring mandatory representation by scientific organizations, including Institutes of Academy of Sciences, universities and NGO specialists with expertise in species, ecosystems, genetic resources and other relevant specialties.</p>
	<p>Scientific staff needs to be incorporated into MENR and into the protected areas and these experts need to be involved in program development and research and monitoring efforts. Data from these projects need to be widely disseminated within and outside of the MENR to allow for its use in biodiversity and natural resources conservation efforts.</p>

<p>D. Lack of public awareness and understanding of the value of biodiversity and the benefits of conserving natural resources</p>	<p>Public awareness and formal and informal education programs are needed to boost environmental concern among Azeris at all levels. School programs can be particularly effective due to the magnification of these efforts over time, through families, and through society as it ages.</p>
	<p>It is necessary to have demonstration projects for the GoA to show the importance of biodiversity conservation and other environmental efforts.</p>
<p>Direct Threats</p>	
<p>1. Overgrazing</p>	<p>Regulations need to be set and enforced for the use of pastures to keep within the carrying capacity of the environment. For instance, rules such as only one cow or four sheep per ha along with strong penalties for infractions will preserve these habitats.</p>
	<p>Strict protected areas need fencing or canals to protect the land from grazing of domestic animals. Where possible, villages should not be located on borders of protected areas. In these cases it is better to change borders of protected areas, and include buffers, so the rules are enforceable.</p>
	<p>Efforts are needed to be made to provide alternative fodder for domestic sheep and goats that are regularly herded through fragile landscapes.</p>
<p>2. Illegal logging, fuel wood harvesting and the timber trade</p>	<p>Gas supplies need to be provided to communities to decrease their reliance on fuel wood collection for heating and cooking.</p>
	<p>Illegal commercial logging for furniture and building material needs to be addressed with strong measures such as control posts on road, strong penalties and information in mass media about each infraction.</p>
	<p>More information is needed to effectively allocate and manage legal logging operations in Azerbaijan. Special projects are needed to identify the real number of harvested trees every year, especially in most vulnerable areas.</p>
	<p>Where the climate and growing conditions are suitable for forest regeneration or replanting, efforts should be made to increase forest cover.</p>
<p>3. Poaching and the illegal wildlife trade</p>	<p>Corruption must be fought in this area, by first implementing special projects to identify the scale of poaching, analyze reasons for each site and then</p>

	<p>bring this information to light. There should be immediate strong control against selling shot birds on the roads.</p>
	<p>Stop absurd prohibition of hunting which has been on the books for four years, because it prevents the establishment of sustainable hunting regulations. Special hunting zones should be established and seasonal hunting permits should be available based on sound wildlife management practices.</p>
	<p>A captive facility for Azerbaijan wildlife is needed that meets international zoo standards and includes captive breeding and reintroduction programs for native species.</p>
<p>4. Over-fishing</p>	<p>Licensing laws for vessels in the Caspian sea and laws regarding illegal fishing and fishing methods in rivers and lakes need enforcing.</p>
	<p>Monitoring projects are needed to identify the real extent of the damage from illegal fishing and also to set better guidelines for commercial fishing operations.</p>
<p>5. Pollution of rivers, wetlands and the Caspian Sea</p>	<p>A monitoring system for oil spills in the Caspian Sea along oil pipelines, and in terrestrial oil fields around wetlands that involves international and local experts is necessary.</p>
	<p>Water quality standards in Azerbaijan need strengthening and infractions need enforcing. A monitoring system of rivers and the coastline involving NGOs, scientists, and the mass media is necessary to identify problems and make people aware of them.</p>
<p>6. Infrastructure development</p>	<p>Attention needs to be paid to aquatic biodiversity issues involving hydroelectric schemes, draining of wetlands and other human engineering programs in natural aquatic habitats. Fish ladders and other bypasses need to be added to existing dams in all waterways that presently block the passage of sturgeon and other fish to their spawning and nursery grounds.</p>
	<p>Terrestrial infrastructures like disintegrating former Soviet era factories, pipelines and other infrastructure need to be removed, and new infrastructure needs to meet EIA requirements.</p>
<p>7. Exotic species</p>	<p>The extent and distribution of exotic species, particularly fish and some invasive plants, need to be determined and efforts put in place to restore native species. Monitoring efforts for invasive species need to be put in place.</p>

	<p>Reintroduction projects, restocking of rivers, planting of trees, etc. should only use native species and subspecies.</p>
<p>8. Changing agricultural practices</p>	<p>Loss of agrobiodiversity is not yet a major problem in Azerbaijan, and seed banks and nurseries for native plants still exist, but need more support before this loss becomes a major threat.</p>

ANNEX K: Matrix of Recommendations in 1999 and Present Situation

Recommendations from 1999 Azerbaijan Biodiversity Analysis	Status of Recommendations in 2009	Current related recommendations*
1. Develop a National Biodiversity Strategy and Action Plan (BSAP)	A National Biodiversity Strategy is still needed.	C1
2. Review, analyze, propose and develop a revised protected area system, including forest reserves, for representation, effectiveness and management regimes	Protected areas are still not managed effectively	B2
3. Identify status and develop management guidelines for fragile or vulnerable habitats, and incorporate into environmental guidelines	There are no management guidelines for fragile habitats.	D1
4. Develop pilot initiatives in community-based natural resource management and biodiversity conservation, e.g., for forestry, grazing, wetlands, tourism	Some pilot initiatives are being started by WWF and GTZ.	A1, E1
5. Develop and build on mechanisms to bring together government, donors, academic and NGO groups for awareness raising, information sharing and coordination of activities	The MENR is closed to such activities	B1
6. Support NGOs in awareness raising and local initiatives	More support is still needed, less support now than previously for these activities.	E1

7. Promote regional collaboration through information sharing, exchange visits, study tours, conferences, and transboundary initiatives	Some collaboration occurs with the Caucasus Ecoregional Conservation Plan	No recommendation
8. Weak Institutional Capacity of government agencies	Capacity still weak, no improvement.	B1, B2
9. Weak Policy framework	Still weak.	C1,C2,C3
10. Low level of environmental awareness and biodiversity valuation	Still low	E1, E2
11. Unavailable systematic tools for prioritization - data-bases on species, habitats, etc.	No real data, few tools exist.	D1, D2
12. Absence and/or weak capacity of CBOs and local community groups	Still weak, and kept at low level by MENR	E1
13. Weak regional cooperation among countries in the Caucasus	Some collaboration with Caucasus Ecoregional Conservation Plan	No recommendation
14. Limited role of private sector in Biodiversity Conservation	Private sector is virtually absent in biodiversity conservation.	No recommendation
*Note: Recommendation numbers refer to those in the body of the 2009 Azerbaijan Biodiversity Analysis report.		

ANNEX L: References

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WWF, 2006, “An Ecoregional Conservation Plan for the Caucasus”, Second Edition, WWF, Tbilisi 0164, Azerbaijan. 220 pgs.

ANNEX M: Persons Interviewed

Name	Position	Organization	Email
WASH D.C.			
Barbara Pitkin	Prog Mgr	US. Dept of Interior	bpitkin@ios.doi.gov
Brad Kinder	Russia, Europe, Near Asia	USDA Forest Service	bkinder@fs.fed.us
Mohammad Latif	Bureau Envir Officer	USAID	mlatif@usaid.gov
Alicia Grimes	EGAT/NRM/F, E&E Biodiversity Expert	USAID Cloudburst Consulting Group, Inc	agrimes@usaid.gov
Jeff Ploetz	Biodiversity Expert	USAID	jploetz@usaid.gov
Mary Rowen	COTR PLACE IQC	USAID	mrowen@usaid.gov
Mark Schlagenhauf	EGAT	USAID	mschlagenhauf@usaid.gov
Bob Ichord	EE/EG/EI	USAID	richord@usaid.gov
Chris Kosnik	COTR PLACE IQC	USAID	ckosnik@usaid.gov
Jack Tordoff	Grant Dir, CEPF	Conservation International	j.tordoff@conservation.org
AZERBAIJAN			
Karimov Seymur	Director	Shirvan Milli Park	ks.cazeri@yahoo.com.tz
Hartmut Mueller	Conservationist	Consultant with GTZ	hartmut.e.j.mueller@gmx.de
Karen Welch	Health Office Director	USAID/Azerbaijan	kwelch@usaid.gov
Tamika Cameron	Program Officer	USAID/Azerbaijan	tcameron@usaid.gov
Naidav Zecevic-Bean	Democracy and Gov	USAID/Azerbaijan	nzecevic-bean@usaid.gov
Joe Taggart	Head, D.G. Office	USAID/Azerbaijan	jtaggart@usaid.gov
Sheila Young	E.G. Officer Director	USAID/Azerbaijan	syoung@usaid.gov
Tamilla Mammadova	Prog Off Secty	USAID/Azerbaijan	tmammadova@usaid.gov
Musa Musaev	Director	Institute of Zoology	Tel 397371
Illy Babayev	Museum Director	Institute of Zoology	ilyasbabayev@mail.ru
Kuliev Zulfugar			
Mustafa Oglu	Dir, Dept Water Animals	Inst of Zoology	Tel 363 57 69
Elshad Gurbanov	Chair Higher Plants	Baku State Univ	elshad_g@rambler.ru
Fidan Azmammadova	Specialist, Int. Programs	Baku State Univ	fidan.azmammadova@bsu.az
Firuza Sultan-Zadeh	Chair	Eco-sphere Ecological Society	ecosfera@azeurotel.com
Islam Mustafayere	Director	RUZGER	imustafayere@mail.zu
Elshad Askerov	Head of Conservation	WWF Azerbaijan	easkerov@wwfcaucasus.az
Issa Aliyev	Dir, National Office	Reg Environ Center Caucasus	
Christian Gonner	Sust Mgs Biod Team Leader	German Technical Cor (GTZ)	christian.goenner@gtz.de
Salamat Nadizov	Ichthologist	Institute of Fish Economy	salamat1364@mail.zu
Gulana Hajiyeva	Environ Specialist	The World Bank	ghajiyeva@worldbank.org
Safarov H. Mirzachan oglu	Dep. Dir Science	Hirkan N.P.	hajiaga_safarov@yahoo.com
Tahir Kerimov	Scientific Secretary	Azerbaijan Ornithological Society	kerimbeyli@hotmail.com
Shahborzov Satarali	Dep.Dir Tourism	Hirkan N.P.	
Local guide	Dep Dir Protection	Turyanchay Protected Area	

ANNEX N: 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) In order to preserve biological diversity, the President is authorized to furnish assistance under this part, notwithstanding section 660, 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) 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.

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

(d) 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) 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) 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) 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 O: ECODIT's Statement of Work

BIODIVERSITY ANALYSES UPDATE FOR GEORGIA AND AZERBAIJAN

I. 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 2004¹.

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. I 19(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.

II. 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 Biodiversity Assessments for Georgia (1999) and Azerbaijan (2000 & 2004) are available on the Development Experience Clearinghouse 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, 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.

III. 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, USDOJ, 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 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.

ANNEX P: Biodata 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.

Elchin Sultanov, Senior-Level NRM Specialist has nearly 30 years experience as a specialist in biodiversity conservation and ecological monitoring, with a focus on ornithology of Azerbaijan. Dr Sultanov coordinated and executed various local and international ecological projects related to biodiversity conservation. He was coordinator of the ornithological section of data collection for the Azerbaijan State Committee for Ecology and Control for Rational Use of Natural Resources in 1993 and again in 2002-2005. As National Biodiversity Specialist, in 2007 Dr. Sultanov prepared the Status Review of the Biodiversity Conservation in the Caucasus: Achieving C2010 Goals and 2009 he prepared the National Red List Index for Azerbaijan. Since 2008, Dr. Sultanov has been the Director of the Azerbaijan Ornithological Society, BirdLife International, where he manages all Society activities, field work in the conservation of rare species and ecological monitoring, preparation and publication of books and booklets, and organization of workshops and conferences. Dr. Sultanov has written numerous scientific publications related to biodiversity conservation during his tenure.