CBC
Caucasus Biodiversity Council

ECOREGION CONSERVATION PLAN FOR THE CAUCASUS

2012 revised and updated edition

WWF
kfw ENTWICKLUNGSBANK
Federal Ministry for Economic Cooperation and Development

List of Contributors

ARMENIA
Aram Agasyan, Ministry of Nature Protection
Arthur Alaverdyan, State Forest Monitoring Centre
Luba Balyan, Armenian Society of Protection of Birds NGO
Tatyana Danielyan, Ministry of Nature Protection
Siranush Galstyan, WWF Armenia Branch
Mamikon Ghasabyan, Institute of Zoology, National Academy of Sciences
Eleonora Grigoryan, Ministry of Nature Protection
Diana Harutyunyan, UNDP Armenia
Karen Jenderedjian, UNDP Armenia
Mark Kalashian, Institute of Zoology, National Academy of Sciences
Nazik Khanjyan, Institute of Botany, National Academy of Sciences
Igor Khorozyan, WWF Armenia Branch
Karen Manvelyan, WWF Armenia Branch
Alexander Malkhasyan, WWF Armenia Branch
Siranush Muradyan, Ministry of Nature Protection
Aram Ter-Zakaryan, UNDP Armenia
Mikhail Voskanov, Ministry of Nature Protection

AZERBAIJAN
Nigar Abdurakhmanova, Expert
Elshad Askerov, WWF Azerbaijan
Tevekkul Iskanderov, The Institute of Zoology of National Academy of Sciences
Irina Rakhmatulina, The Institute of Zoology of National Academy of Sciences
Elchin Sultanov, Azerbaijan Ornitological Society
Elena Tagiyeva, The Institute of Geography of National Academy of Sciences
Rashad Allahverdiyev, Ministry of Ecology and Natural Resources

GEORGIA
Ketevan Batsatsashvili, Institute of Botany/Ilia State University
Maka Bitsadze, Expert
Nodar Elizbarashvili, Djavakhishvili State University
Ramaz Gokhelashvili, Independent expert
Zurab Gurielidze, Ilia State University and Tbilisi Zoo
Andrei Kandaurov, Institute of Zoology /Ilia State University
Ioseb Kartsivadze, Ministry of Environment Protection
Merab Machavariani, Forestry expert
Zurab Manvelidze, NGO "Mta-Bari"
Lasha Moistsrapishvili, Ministry of Environment Protection/Agency of Protected Areas
Giorgi Nakhutsrishvili, Institute of Botany /Ilia State University
Ilia Osepashvili, WWF-Caucasus Programme Office
Ana Rukhadze, Ministry of Environment Protection
David Tarkhnishvili, Ilia State University

IRAN
Ali Aghili, Persian Leopard Conservation Society
Mohammad Razi Elahian, Expert
Nahide Naghizadeh, CENESTA
Esmail Kahrom, Islamic Azad University
Vahid Jafarian, Expert
Kourosh Kavoosi, Expert
Seyed-Mohammadreza Fatemi, Islamic Azad University
Mohammad Baqherzadeh-Karimi, Iranian Department of Environment
Mina Torki, Expert
Asghar Mohammadi Fazel, Iranian Department of Environment
Behzad Saeedpour, University of Environment
Hossein Mohammadi, Iranian Department of Environment
Mohammad S. Farhadinia, Iranian Cheetah Society
Ali Bali, Iranian Department of Environment
Mohammad Nosrati, Iranian Department of Environment
Bagher Nezami, University of Environment /Iranian Cheetah Society
Hadi Jafari, University of Environment
Mohammadreza Masoud, East Azerbaijan Society for Protection of Wildlife

RUSSIA
Sergey Bukreev, A.N. Severtsov Institute of Ecology and Evolution
Gadzhibek Dzhamirzoev, Federal State Institution «Daghestansky Nature Reserve»
Vladimir Krever, WWF Russia
Alexander Naseka, Expert
Boris Tuniyev, Federal State Institution «Sochi National Park»
Yuri Yarovenko, Caspian Institute of Biological resources, Daghestanian Scientific Centre, Russian Aacademy of Sciences

TURKEY
Sabri Kiriş, General Directorate of Nature Conservation and National Parks, Ministry of Forest and Water Works
Hüsniye Kılınçarslan, General Directorate of Nature Conservation and National Parks, Ministry of Forest and Water Works
Burcu Bursalı, General Directorate of Nature Conservation and National Parks, Ministry of Forest and Water Works
Uğur Zeydanlı, NGO, Nature Conservation Centre
Basak Avcioglu, WWF-Turkey
Sagdan Baskaya, Faculty of Forestry, Karadeniz Technical University
Ozgun Emre Can, WildCRU, Department of Zoology, University of Oxford
Halim Diker, Independent Consultant
Sedat Kalem, WWF-Turkey
Yildiray Lise, IUCN-WCPA Member

REGIONAL ORGANISATIONS
Armen Gevorgyan, Transboundary Joint Secretariat
Hartmut Jungius, Caucasus Biodiversity Council
David Morrison, Caucasus Nature Fund
Giorgi Sanadiradze, WWF-Caucasus Programme Office
Nugzar Zazanashvili, WWF-Caucasus Programme Office and Caucasus Biodiversity Council
Anja Wittich, IUCN Caucasus Cooperation Centre

Edited by: **Nugzar Zazanashvili, Mike Garforth, Hartmut Jungius, Tamaz Gamkrelidze** with participation of **Cristian Montalvo**

Table of Contents

1. INTRODUCTION

1.1. The Caucasus Ecoregion – a globally important biodiversity hotspot

The Caucasus Ecoregion covers a total area of 580,000 km2, extending over all of Armenia, Azerbaijan and Georgia, North Caucasian part of Russian Federation, north-eastern Turkey, and part of north-western Iran. The Caucasus is one of the most biologically rich regions on Earth. It is one of WWF’s 35 “priority places” and of 34 “biodiversity hotspots” identified by Conservation International as being the richest and at the same time most threatened reservoirs of plant and animal life on Earth. The 2010 IUCN Red List of Threatened Species (hereinafter referred to as IUCN Red List) identifies around 50 species of globally threatened animals in the Caucasus.

Located at a biological crossroads, species from Central and Northern Europe, Central Asia and the Middle East, and North Africa mingle with endemics found nowhere else. Over 7,000 species of vascular plants are found in the Caucasus. At least a quarter of the plants are found nowhere else on Earth – the highest level of endemism in the Temperate Zone of the Northern Hemisphere. One-third of the endemic plants in the Caucasus Ecoregion are thought to have originated in the Greater Caucasus Range. Seventeen endemic plant genera thrive in the Caucasus, nine of which are associated with high mountain communities. Plant associations from the Tertiary period have been preserved in the Colchic and Hyrcanic refugia – centres of plant endemism. The Caucasus Mountains harbour a wealth of highly sought-after medicinal and decorative plants, as well as unique relic and endemic plant communities.

At least 153 mammals inhabit the Caucasus; one-fifth of these are endemic to the region. As many as 400 species of birds are found in the Caucasus, four of which are endemics. The coasts of the Black and Caspian seas are important stopover sites for millions of migrating birds, flying over the isthmus each spring and autumn between their summer and winter homes. Twenty-one of the 87 reptiles in the Caucasus are endemic to the region. Fourteen species of amphibians are found here, of which four are endemics. Some 200 species of fish inhabit the lakes, rivers and seas of the Caucasus, over a third of which are found nowhere else.

1.2. Biodiversity under threat

This amazingly rich biodiversity is being lost at an alarming rate. Nearly half the lands in the Ecoregion have already been transformed by human activities. The plains, foothills, and subalpine belts have been the most heavily impacted. Native floodplain vegetation remains on only half of its original area in the North Caucasus, and only two to three percent of original riparian forests remain in the South Caucasus. Most natural old growth forests have been fragmented into small sections, divided by areas of commercial forests or plantations, as well as agricultural and developed lands. For the Caucasus as a whole, about a quarter of the region remains in reasonable condition, while less than 12 percent of the original vegetation, including forests, can be considered pristine.

Construction of large-scale infrastructure such as hydro-electric power plants, electricity transmission lines and roads, unsustainable logging of forests, overgrazing of pastures, killing and taking of wildlife, and pollution are all threatening the biodiversity of the Ecoregion. The situation is being aggravated by the impacts of climate change. The root causes behind these threats are complex:

- The political agenda is dominated by the drive for rapid economic growth, which takes precedence over environmental and social concerns.
- Poverty and resulting direct dependence from natural resources are forcing rural people to overuse forests and pastures and to poach wild animals.
- Awareness of the importance of conserving biodiversity is still at a low level, especially among rural people and other users of natural resources.
- Lack of transparency in the development of strategies and projects and weak spatial planning and environmental assessment instruments leads to lack of accountability for negative impacts of economic development on biodiversity.
- Under-financed sector administrations, capacity gaps, unclear delineation of responsibilities

result in poor coordination between government agencies; integrated and cross-sectoral approaches are rarely applied.

- Adequate systems for monitoring of natural resources management and sector-based studies are not in place.
- Misconceptions of understanding of the contribution/benefits of ecosystems provisioning, regulating and supporting to economic growth, poverty alleviation and sustainable development.
- Limited awareness on significant benefits and values of Protected Areas at local and national levels.

1.3. The Ecoregion Conservation Plan

The countries of the ecoregion with the support of international donor organisations are doing much to mitigate the threats to biodiversity. But country-focused actions need to be planned in the context of the entire Ecoregion: long-term, regional conservation strategies are required to mitigate the threats. The Ecoregion Conservation Plan responds to that need: it sets out long term and medium targets and short to medium term actions for conserving priority ecosystems and species across the entire Ecoregion.

The first steps towards the Ecoregion Conservation Plan were taken in the late 1990s. The MacArthur Foundation provided the funding for an initial assessment[1] of the Ecoregion's biodiversity and the threats which it faces. The results of that assessment helped to bring the importance of the Ecoregion to the attention of a wider audience and to get support to build on this founding work.

With funding from the German Federal Ministry for Economic Cooperation and Development (BMZ) through KfW Development Bank, the Critical Ecosystem Partnership Fund and further funding from the MacArthur Foundation, experts from the six countries of the Ecoregion were able to start the process of preparing the Ecoregion Conservation Plan. From 2001-2005, more than 140 experts from the six countries of the Caucasus Ecoregion took part in a project funded by the MacArthur Foundation, KfW, and CEPF to assess the biological significance and state of biodiversity of the Caucasus Ecoregion. Nine stakeholder workshops were carried out to review the assessments and elaborate long-term goals for biodiversity conservation in the Caucasus Ecoregion.

Four priority biomes – forest, freshwater, marine, and high mountain – containing the bulk of the biodiversity in the Ecoregion and subject to the greatest threats were selected as priorities for conservation. Within these biomes, 26 focal species and 56 Priority Conservation Areas (PCAs) were delineated to help further focus conservation efforts. Additionally, 60 important corridors were delineated to ensure connectivity of PCAs for migrating species. Within each priority biome, actions were elaborated for conservation, management and restoration of biodiversity.

1.4. The revised, 2012 edition

In 2010 the Caucasus Biodiversity Council (CBC) proposed revising the Ecoregion Conservation Plan to take account of progress made since the previous edition. The CBC's secretariat circulated the action plan to experts in the Ecoregion (in the countries' environment ministries and nature protection agencies, NGOs and scientific institutions) for preliminary feedback on changes that should be made. Detailed drafting was done at workshops arranged by the CBC in Tbilisi in February 2010 and in Istanbul in March 2011.

This revised edition of the Ecoregion Conservation Plan retains the vision for biodiversity elaborated in 2002. The vision remains as valid today as it did ten years ago:

> *"Our vision for the Caucasus is of a region where healthy populations of native plants and animals flourish; habitats, landscapes and natural processes are preserved; and where vibrant and diverse peoples actively participate in the equitable and sustainable management and use of natural resources."*

1. V.Krever, N.Zazanashvili, H.Jungius, L.Williams, D. Petelin (Editors). 2001. Biodiversity of the Caucasus Ecoregion: an Analysis of Biodiversity and Current Threats and Initial Investment Portfolio.

Realising this vision will require continued and strengthened collaboration between the many different actors who have the power and know-how to make things happen: they include the government authorities responsible for nature protection and biodiversity conservation, NGOs, scientific institutions. Financial support of multilateral and bilateral donors will continue to be essential.

The Plan will help conservation actors working in the region to plan and coordinate their activities. It provides a supporting tool for the governments of the Caucasus region to implement their obligations under multilateral environmental agreements and in particular the Strategy for Biodiversity Conservation 2011 – 2020 and its associated "Aichi Targets" which were adopted by the Parties to the Convention on Biological Diversity in Nagoya, Japan in 2010.

At the same time, Ecoregion Conservation Plan is not a legally binding document, which does not necessarily reflect priority governmental strategies and national actions in different fields of nature conservation.

2. BIODIVERSITY OVERVIEW

2.1. "Satellite view" of the Ecoregion

The Caucasus Ecoregion occupies the isthmus between the Black Sea and the Caspian Sea (see Map 1 below). The Greater Caucasus Mountain Range divides the Ecoregion into two parts. The northern part includes the Russian republics of Adigeya, Karachayevo-Cherkessiya, Kabardino-Balkaria, Northern Ossetia, Ingushetia, Chechnya, and Dagestan, Krasnodar and Stavropol provinces and part of Rostov province. The southern part includes all of Armenia, Azerbaijan, Georgia, as well as north-eastern Turkey and part of north-western Iran.

The Ecoregion has five major topographic features:

- The **North Caucasus Plain** extends from the north side of the Greater Caucasus Mountain Range to the Kuma-Manych River Depression, a channel that used to connect the Azov and the Caspian seas. The North Caucasus Plan lies entirely in the Russian Federation.
- The **Greater Caucasus Mountain Range** extends across the Ecoregion from the northwest to the southeast for nearly 1,500 km reaching into Azerbaijan, Georgia and the Russian Federation. The highest summits rise to more than 5,000 m (reaching 5,642 m - Mt. Elbrus, the highest peak of the Caucasus) in the central part of the range and to more than 4,000 m in the western and eastern parts of the range.
- The **South Caucasus Depression** lies between the Greater and Lesser Caucasus mountain ranges and extends across Georgia and Azerbaijan. The Kura river flows through the depression for much of its length on its way to the Caspian sea.
- The **Lesser Caucasus Mountain Chain** and the **Dogu Karadeniz Mountains**, border the Southern Highlands from the north, east, and west and extend across Georgia, Turkey, Armenia, Azerbaijan, and into Iran. The highest summits rise to nearly 4,000 m.
- The **Southern Highlands**, made up of lava ridges and a broad volcanic plateau, surrounded by the Lesser Caucasus mountain chain. The Southern Highlands extend across parts of Georgia, Armenia, Azerbaijan (Nakhchyvan), Turkey, and Iran (avarage elevation – 1,700-1,900 m, rising to more than 5,000).
- The **Talish-Western Alborz Mountains** in the south-eastern Caucasus extend along the Caspian Sea across the border between Azerbaijan and Iran. The Mountains are separated from the Lesser Caucasus Mountain Chain by river depressions, with highest peaks reaching more than 4,000 m.

2.2. Natural landscapes

The Caucasus Ecoregion is situated on the boundary of temperate and moist-temperate (also called “northern sub-tropics”) climate belts. The elaborate mountain relief and the influence of both marine and continental weather systems create a wide range of climate conditions. The moist and warm temperate climate of the Colchic foothills and lowlands in the western portion of the Caucasus receives 1,200 to 2,000 mm of precipitation a year (with maximum - 4500 mm at Mt. Mtirala) and allows the cultivation of citrus and tea. In contrast, in the eastern, lawland part of the Transcaucasian Depression, annual precipitation of less than 250 mm and abundant summer sunshine create conditions favourable only for drought-resistant species.

The diverse topography and climate has provided conditions to develop a remarkably wide array of landscapes and plant formations (see the map in annex 1). They include two features of plants and plant associations that date back millions of years: the Colchic refugium in the eastern Black Sea basin and the Hyrcanic region on the southern Caspian Sea coast. These “refugia”/refugial forests harbour many locally endemic plants - species that are found nowhere else. They include relict and endemic oaks (such as *Quercus imeretina, Q. hartwissiana*), Medvedev’s birch (*Betula medwedewii*), Ungern’s and Smirow’s rhododendrons (*Rhododendron ungernii, R. smirnowii*), epigea (*Epigaea gaultherioides*) in the Colchic, and Chestnut-leaf oak (*Quercus castaneifolia*), ironwood tree (*Parrotia persica*), silk tree (*Albizia julibrissin*), Hyrcanic poplar (*Populus hyrcana*), and Alexandrian laurel (*Danaë racemosa*) in the Hyrcanic. At the same time these unique forests can mostly be classified as temperate rainforests, due to the same principal reasons as for other temperate rainforest regions: relevant slopes of barrier-mountains located along coastlines that trap a large portion of the humidity from sea air masses. In the Caucasus, these barriers are formed by a topographical triangle created by the intersection of the western part of the Greater Caucasus Mountain Range (Georgia, Russia), western part of the Lesser Caucasus Mountain Chain (Turkey, Georgia) and Likhi ridge (bridge ridge between Greater and Lesser Caucasus, Georgia) at the Black Sea, and by the Talysh-Alborz Mountain Range at the southern-southwestern coast of the Caspian (Iran, Azerbaijan). Montane barriers also contribute to a warm and humid climate that has been present since the late Tertiary and is the primary reason that the Caucasus has acted as a shelter for humid- and warm-requiring (hygro-thermophilous) relicts during the ice age.

The natural landscapes of the North Caucasus Plain transition from steppes in the west, characterised by grasses such as *Stipa* spp. and *Festuca valesiaca*, to semi-deserts, and then to deserts in the east with *Artemisia taurica* and other species.

In the western part of the South Caucasus (Transcaucasian) Depression swamp forests with alder (*Alnus barbata*) and wingnut (*Pterocarya pterocarpa*) give way to steppes with *Botriochloa schaemum* and *Stipa* spp. as one moves east, then to arid woodlands with junipers (*Juniperus spp.*) and pistachio (*Pistacia mutica*) and to semi-deserts, and finally to deserts with *Artemisia fragrans* and *Salsola* spp. Oak forests are found in flood plains and along river terraces, with *Quercus imeretina* and *Q. hartwissiana* in the west of the depression and *Q. pedunciflora* in the eastern, drier part. In lawland and foothill parts belonging to the Caspian basin large mires lie along river and irrigation channels; the most significant are reed and cattail covered swamps near Ag Gel (Aghgol) and Sarysu lakes in Azerbaijan.

In the mountain ranges, in the foothills up to 500-600 m, Colchic forest is found in the western part of the South Caucasus and oak-hornbeam forests (*Quercus iberica-Carpinus orientalis*) in the eastern part. In the sub-montane belt (500-1,000 m) chestnut-beech forests (*Castanea sativa-Fagus orientalis*) are found in the western part of the South Caucasus and oak-hornbeam forests (*Quercus iberica-Carpinus caucasica*) in the eastern part; *Quercus petraea occupies* the sub-montane belt in the North Caucasus. The montane belt (1,400-1,800 m) is dominated by dark coniferous forests of *Abies nordmanniana* and *Picea orientalis*, which extend up to above 2,000 m in some places, and forests composed of beech (*Fagus orientalis*), oak (*Quercus macranthera*) or pine (*Pinus kochiana*). The vegetation of the sub-alpine belt (1,8000-2,500 m) is characterised by birch forest (*Betula* spp.), shrub communities, tall herbaceous vegetation and grasslands. The alpine belt (2,500-3,000 m) is occupied by grasslands and by thickets of the relict endemic *Rhododendron caucasicum*. On the volcanic plateau of the Southern Highlands the main vegetation formations are woodlands of oak (*Quercus macranthera*), steppe and wetlands.

Woven through these landscapes are rivers and lakes. The river systems of the Ecoregion feed three different seas. The Kura River is the longest in the Ecoregion (1,515 km) flows into the Caspian in the South Caucasus. The longest in the North Caucasus is Kuban River (870 km) belongs to the Azov-Black Sea basin. Lakes are found across the Ecoregion, the largest being Lake Sevan in Armenia (surface area – 1,262 km^2, year 2010). The high mountains of the western and central parts of the Greater Caucasus are dotted with glacial and karst lakes. Lakes are also a feature of the plateau landscape of the Southern Highlands which extends across the Armenian – Georgian border.

The Ecoregion extends along 1,765 km of the coast of the Black Sea and Sea of Azov and along 1,960 km of the Caspian Sea coast. These parts of the Ecoregion include marine and coastal habitats that support numerous species of fish, waterfowl and marine invertebrates. The coasts of the Black and Caspian seas are important stopover sites for millions of migrating birds, flying over the isthmus each spring and autumn between their summer and winter homes.

2.3. Fauna and flora

Some 153 species of mammals, around 400 species of birds, 87 species of reptiles, 17 species of amphibians and around 130 species of fish are found in the Caucasus Ecoregion.

Among small mammals are many endemic species; they include the Kazbegi birch mouse (*Sicista kazbegica*), Klukhori birch mouse (*Sicista kluchorica*), and Gudauri snow vole (*Chionomys gud*); Dahl’s jird (*Meriones dahli*), distributed in semi-deserts of the most southern part of the region, according to recent surveys, seems to be extinct. The unusual long-clawed mole-vole (*Prometheomys schaposchnikovi*), found only in the western Caucasian uplands, is the sole representative of a monotypic genus which is endemic to the region. The Ecoregion harbours several bat species included in the IUCN Red List.

Many species of larger mammals in the Ecoregion are threatened or confined to a small part of their former ranges. The Persian[2] leopard (*Panthera pardus saxicolor*) and another large carnivore, the striped hyena (*Hyaena hyaena*), are on the verge of extinction in the Ecoregion: small populations of

2. Persian leopard is also known as Caucasian Leopard, Central Asian Leopard, North Persian Leopard, West Asian Leopard.

leopard survived in the Greater Caucasus Range, Iori-Ajinour plateau, southern Azerbaijan and southern Armenia with larger core population in Iran; a handful of hyenas are believed to survive within a very small range in the plains of western Azerbaijan, eastern Georgia and southern Armenia. The bezoar goat (*Capra aegagrus*), mouflon (*Ovis ammon gmelini*), Caucasian chamois (*Rupicapra rupicapra caucasica*) and west Caucasian and east Caucasian tur (*Capra caucasica* and *C. cylindricornis*) have all declined as a result of hunting. The goitred gazelle (*Gazella subgutturosa*), once widespread across Azerbaijan and eastern Georgia, is now confined to Shirvan National Park and small population in Korchay strict nature reserve in Azerbaijan. The European bison (Bison bonasus), reintroduced to the North Caucasus after becoming extinct, is once again under threat and only about 70 individuals remain in two protected areas in the Russian Caucasus. In the South Caucasus one of the most endangered mammals is the Caucasian sub-species of red deer (*Cervus elaphus maral*).

The Ecoregion has four endemic bird species: the Caucasian black grouse (*Tetrao mlokosiewiczi*) is found in subalpine habitats throughout the region; the Caspian snowcock (*Tetraogallus caspius*) occurs in alpine areas throughout the region except the Greater Caucasus Range; the Caucasian snowcock (*Tetraogallus caucasicus*) is found only in the Greater Caucasus Range; and the Armenian gull (*Larus armenicus*) nests only on Lake Sevan and Lake Arpi in Armenia. The great finch (*Carpodacus rubicilla*) and Gueldenstaedt's redstart (*Phoenicurus erythrogaster*) have small populations in the Caucasus that are separated from their main ranges in the Himalayas by thousands of kilometres. The populations of birds of prey are in decline: the lammergeyer (*Gypaetus barbatus*), golden eagle (*Aquila chrysaetos*), Imperial eagle (*A. heliaca*) and Egyptian vulture (*Neophron percnopterus*) are all endangered. A subspecies of the peregrine falcon (*Falco peregrinus caucasicus*) is especially rare, with only 30 to 50 pairs left in the Ecoregion.

28 reptile species are endemic to the Ecoregion. Species viper (*Vipera* spp.) and rock lizards (*Darevskia* spp.) are particularly interesting: many of them occupy total ranges of only a few thousand square kilometres; and of the 26 species rock lizard known to exist in the world, 25 occur in the Caucasus and 23 are endemic. Four amphibian species are endemic to the region. The Caucasian salamander (*Mertensiella caucasica*), which has evolved independently for 15 million years, is found only in western Georgia and the Turkish Caucasus. The Caucasian mud-diver (*Pelodytes caucasicus*) and Caucasian toad (*Bufo verrucosissimus*) inhabit mountain forests of the Caucasus.

More than 70 fish species occur in the Ecoregion's lakes and rivers, and at least 14 are endemic to the Caucasus. Six species of sturgeon are endangered by overfishing and habitat degradation in the Black and Caspian seas. The Atlantic (Baltic) sturgeon (*Acipenser sturio*), which spawns only in rivers in the Kolkheti Lowlands in Georgia, is critically endangered.

About 7,000 species of vascular plants grow in the Caucasus and at least 25% are found nowhere else in the world; the highest level of plant endemism in the temperate zone of the northern hemisphere. Nearly 700 species of vascular plants, five species of lichens and 11 species of fungi are listed in national red lists of rare or endangered species. There are 17 endemic genera of plants. 80 percent of the plants growing on the Colchic limestone scree are found nowhere else in the world. The flora of the Caucasus region includes many ancient species: notable relict species include the endemic rhododendrons (*Rhododendron caucasicum*, *R. ungernii*, *R. smirnowii*) and Persian ironwood (*Parrotia persica*). The region also has a remarkable concentration of economically important plants, particularly wild crop relatives such as wheat, rye and barley, and nuts and fruits like walnuts, apricots and apples.

3. CONSERVATION STRATEGIES AND ACTORS

3.1. Conservation strategies

Critical for conserving the Ecoregion's biodiversity is a fully representative network of protected areas. All types of protected areas currently cover about 10% of the Ecoregion (see maps in annexes 3, 4); they range in size from *natural monuments* of a few hectares to *national parks* of hundreds of square kilometres. Protected areas in the region also include *strict nature reserves*, *sanctuaries* (also referred to as *reserve*, *wildlife reserve* and *management nature reserve*), *protected landscapes* and *multiple use areas*[3].

The last 10 years have seen a remarkable expansion of the protected areas system. **Armenia** has added Lake Arpi National Park in the northern part and Arevik National Park and Zangezur Sanctuary in the southern part of the country, the last two of these are critical for the endangered Persian leopard. **Azerbaijan** has doubled the size of its protected areas network. New protected areas in Azerbaijan include Shahdagh – one of the largest national parks in the Ecoregion - Ordubad National Park and the extended Zakatala Reserve, which are important for the bezoar goat, mouflon and East Caucasian Tur; Shirvan National Park and Absheron National Park in the Caspian Sea coastal area, both of them important for threatened bird species, Shirvan National Park for the goitered gazelle and Absheron National Park for the Caspian seal (Pusa caspica). **Georgia** has added three large complexes of different categories at Lagodekhi and Tusheti in the Greater Caucasus Range and Vashlovani in the central part of the South Caucasus Depression, Mtirala National Park in the Lesser Caucasus Chain and Javakheti national park in the northern part of the Southern Highlands, contiguous with the new Lake Arpi National Park in Armenia. In the **Russian Caucasus**, Erzi Reserve in the eastern part of the Greater Caucasus Range and important for leopard, eastern tur and bezoar goat, has been substantially expanded. **Turkey** has added two large national parks in the Turkish Caucasus - Agri Mountain and Sarikamis.

The existing network of protected areas provides a substantial foundation for biodiversity conservation in the Caucasus Ecoregion but much still needs to be done. Protected areas are completely absent from some critically important areas and the existing network is not completely representative of the full range of biodiversity in the Ecoregion. Most strict nature reserves and national parks in the Ecoregion are too small to guarantee long-term biodiversity conservation. Existing protected areas are separated from each other and there are no linking corridors that would allow migration of wide-ranging species and ensure the resilience of plants and animals to climate change and anthropogenic development: landscape scale approaches to conservation need to be initiated. Management effectiveness of protected areas needs to be increased and sustained financing provided. Cooperation between national governments is needed in some parts of the Ecoregion to develop a transboundary approach to managing protected areas.

Strengthening the protected areas network is not enough on its own: special programmes to ensure the survival and recovery of threatened species are of crucial importance. Action also needs to be taken to strengthen governance of the use of natural resources outside protected areas to ensure that biodiversity is conserved and used sustainably. Action is needed in several directions: some of the instruments that can be used to mitigate the impacts of economic development on biodiversity are still lacking or weak, in particular strategic environmental assessment, environmental assessments of individual projects, and spatial planning instruments for zoning built urban and industrial development; regulations governing forest use and fisheries need to be strengthened and enforced more rigorously; degraded habitats need to be restored and ecosystems vulnerable to the impacts of climate change may need to be made more resilient.

3.2. Actors

Many different actors are involved in tackling the threats to the Ecoregion's biodiversity and helping to achieve the vision of the Ecoregion Conservation Plan. They include: the governments of the Caucasus countries; bilateral (government to government) donors; multilateral donors such as the Global Environment Facility (GEF), World Bank, United Nations Development Programme (UNDP), and European Union (EU); international non-governmental organisations (NGOs) and foundations; regional NGOs; regional scientific institutions; and the private business sector. Media organisations - television, radio and the printed media – also do important work by communicating the value of biodiversity and the need for action.

3.The categories of protected area in the Ecoregion correspond to IUCN's internationally recognised categories as follows: *strict nature reserve* corresponds to Category I; *national park* mostly corresponds to Category II; *natural monument* corresponds to Category III; *sanctuary* mostly corresponds to Category IV; *protected landscape* corresponds to Category V; *multiple use area* corresponds to Category VI.

Governments of the Caucasus countries

The governments of the countries of the Caucasus region establish the policy environment and legal framework for the conservation and use of biodiversity. Ministries and their departments and agencies administer legislation governing natural resource use and manage most of the Ecoregion's protected areas and forest lands. They finance biodiversity conservation activities and create an enabling environment for cooperation between international and regional organisations and conservation actors working in the non-governmental sector. State budgets pay the salaries of policy and research staff, environmental protection officials and managers of state forests and protected areas, infrastructure and equipment and their operating costs.

Since the first edition of the Ecoregion Conservation Plan, in addition to expanding their protected areas networks the countries of the region have acted to strengthen the framework conditions for biodiversity conservation. Policy and legal frameworks have been improved (for example through the development of national biodiversity strategies and action plans and improving laws and regulations), and the capacities of state organisations increased (for example through the development of national biodiversity monitoring systems and training state of forest department and protected areas administration staff).

Bilateral (government to government) donors

The **Government of Germany** has been supporting biodiversity in the Ecoregion since 1998, when it provided the financing, through the Federal Ministry for Economic Cooperation and Development (BMZ) and KfW Entwicklungsbank (KfW), to create the Borjomi-Kharagauli National Park. More recently KfW has provided financing for the design and creation of the Lake Arpi National Park in Armenia, Javakheti National Park in Georgia and Samur-Yalama National Park in Azerbaijan and for the operation of the Transboundary Joint Secretariat (TJS), which provides support to the Ministries of Environment of Armenia, Azerbaijan and Georgia to increase regional harmonization in the nature conservation sector and to develop the sector. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) is implementing a Sustainable Management of Biodiversity programme in Armenia, Azerbaijan and Georgia financed by BMZ; measures include technical assistance for preparing new biodiversity conservation strategies and action plans and developing national biodiversity monitoring systems. The German Federal Ministry for Environment and Nuclear Safety (BMU) has financed climate change adaptation and landscape restoration projects in Armenia, Azerbaijan and Georgia. The German government has also provided capital for one of the two special vehicles active in the region - the Caucasus Nature Fund.

The Ministry of Foreign Affairs of the **Government of Norway** provided the financing for the Mtirala National Park in Georgia and for measures to improve the social and economic conditions of communities around the national park. In Armenia the Ministry has financed a biodiversity protection and community development programme which has strengthened Khosrov Forest and Shikahogh State Reserves, newly established Arevik National Park and Zangezur sanctuary, as well as improved social and economic conditions of communities around the protected areas.

The **United States Agency for International Development (USAID)** funds environmental governance and sustainable use of natural resources projects in the Caucasus (among many other sectors). In the Russian Caucasus USAID has funded projects to promote environmental education and ecotourism in nature reserves, the mass media, and children's camps through the Institute for Sustainable Communities. In 2010 USAID started up a new programme - Integrated Natural Resource Management in Watersheds – to introduce innovative approaches to the sustainable management of natural resources. With the **U.S. Department of the Interior, USAID** is assisting Georgia to enhance the capacity of the Agency of Protected Areas to manage and commercialize national parks and promote tourism opportunities.

Multilateral donors

The **Global Environment Facility (GEF)** acting through **UNDP** and the **World Bank** has supported biodiversity conservation projects throughout the Ecoregion. GEF's portfolio of completed projects includes the creation of new protected areas, strengthening management effectiveness at site and system level, and measures to promote the sustainable use of biodiversity in and around protected areas. Just a few examples of projects completed with GEF financing are: four new protected areas in Georgia (Vashlovani Protected Areas, Lagodekhi Protected Areas, Tusheti Protected Areas, and Kolkheti National Park); strengthened capacity for resource management planning, protected areas management, and conservation of threatened fauna species in Turkey, including strengthening the Camili Strict Nature Reserves and surrounding biosphere reserve in the Turkish Caucasus. The GEF's current portfolio in the region includes: the "Developing the Protected Area System of Armenia" project, which will catalyse the expansion of protected areas to provide better representation of ecosystems within Armenia's current protected area system and enable effective conservation of biodiversity; in Azerbaijan the "Sustainable Land and Forest Management" project in the Greater Caucasus Landscape" project which is designed to increase the level of pasture and forest management in the country in line with international standards; and two projects - one in Armenia and one in Georgia – that will help to ensure stable revenue streams for protected areas and improve business planning and cost-effectiveness of site management (the project is being implemented in cooperation with the Caucasus Nature Fund).

UNEP and Georgia's government recently initiated a TEEB (The Economics for Ecosystems and Biodiversity) Scoping Study with the view to carry out a national TEEB study.

The **EU** is financing a number of regional projects and projects in individual countries that support the goals of the Ecoregion Conservation Plan. WWF is implementing a project in Armenia, Azerbaijan and Georgia with financing from the EU's Environment and Sustainable Management of Natural Resources Programme (ENRTP) to pilot measures to make forests more resilient to the impacts of climate change. In Georgia the EU is financing the Georgian Carnivore Conservation Project which is designed to develop effective mechanisms and capacity and enhanced advocacy to improve the conservation status of large carnivores in and around the protected areas of the semi-arid landscape of Georgia, and a project in the framework of the EU Twinning Programme to strengthen protected areas management planning capacity.

International NGOs, private foundations and special funding vehicles

WWF has been active in the Ecoregion for 20 years and works through offices in Armenia, Azerbaijan, Georgia, Russia and Turkey. WWF has played a key role in developing and promoting the ecoregion approach to biodiversity conservation in the Caucasus and in forging partnerships with and between other actors in the government and non-government sectors and the donor community. Many of the results of the investments made over the years stem from WWF's strategic activities.

The **International Union for Conservation of Nature (IUCN)** is working through and with its Caucasus members and partners as well as with its expert commissions (e.g. Species Survival Commission, World Commission on Protected Areas) to implement the Union's programme in Armenia, Azerbaijan and Georgia. The Caucasus Cooperation Center is based in Tbilisi, Georgia and offers services under two programme areas – Biodiversity Conservation and Natural Resources Management and – including: access to global nature conservation knowledge; promotion of synergies among ongoing and planned activities via thematic networks; assistance in identifying gaps and trends in specific sectors; and facilitation of multi-stakeholder processes.

Two private foundations have been especially active in supporting conservation activities in the Ecoregion. The **MacArthur Foundation**, which supports the development of civil society, helped to establish the Caucasus Biodiversity Council. **MacArthur** was also one of the founders of the Critical Ecosystem Partnership Fund (described later in this section). The **MAVA Foundation** financed activities in support of the implementation of the Convention on Biological Diversity's Programme of Work on Protected Areas (PoWPA) in Armenia, Azerbaijan, Georgia, Russia and Turkey. The project included analysis of the legal and institutional frameworks, assessment of management effectiveness and capacity needs of protected areas and action planning, financial needs assessment and sustainable financial planning, and communication activities.

The **Critical Ecosystem Partnership Fund (CEPF)** is a joint initiative of l'Agence Française de Développment, Conservation International, the Global Environment Facility, the Government of Japan, the MacArthur Foundation and the World Bank. Between 2004 and 2009 the CEPF invested $8.5 million supporting the elaboration and subsequent implementation of science-based strategies for species conservation. Funds for implementing the strategies were channelled to civil society organisations through

a competitive grant scheme. In this way the CEPF's investment has helped to build implementation capacity in the non-governmental sector as well as make progress towards the species conservation targets of the ECP.

The **Caucasus Nature Fund (CNF)** was established on the initiative of the German Government, KfW Entwicklungsbank, WWF and Conservation International. The CNF provides financing to help pay the running costs of protected areas in the South Caucasus countries. The CNF has attracted additional funding from the GEF and private corporations including Bank of Georgia, ProCredit Bank (in Georgia) and HSBC Bank (in Armenia). From 2012 the CNF will be supporting ten and more protected areas, including Borjomi-Kharagauli National Park, Lagodekhi Protected Areas, Tusheti Protected Areas and Vashlovani Protected Areas in Georgia; Dilijan National Park, Lake Arpi National Park, Shikahogh State Reserve, Zangezur Sanctuary, Arzakan-Megradzor Sanctuary and Khosrov Forest State Reserve in Armenia.

Private business sector

Support from the private business sector is quite low compared with other actors but there have been some important precedents. A good partnership is established between WWF and HSBC in Armenia. British Petroleum funds conservation activities along the route of the Baku-Ceyhan pipeline though a small grants programme. The CNF's success in attracting new donors from the sector is an encouraging sign.

Regional NGOs

The **Regional Environmental Centre for the Caucasus (REC-Caucasus)** – founded by the EU and the governments of Armenia, Azerbaijan and Georgia - assists in capacity building through provision of information, advice, and expertise and to encourage dialogue, cooperation and public participation in environmental decision-making. REC-Caucasus is currently implementing projects in the fields of biodiversity conservation and sustainable use of natural resources financed by the EU and by the Norwegian government.

In Armenia the **Armenia Tree Project** – established and funded by the Armenian Diaspora – is focused on reforestation projects; the Armenia Tree Project is collaborating with WWF in implementing projects on forest adaption to climate change funded by BMU (German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety), KfW Entwicklungsbank and EU. **Chevre** promotes sustainable development in the north-eastern Azerbaijan. In Georgia **NACRES** implements projects on research and monitoring of large carnivores and on protected areas; it is currently implementing the EU-funded Georgian Carnivore Conservation Project in collaboration with **Fauna and Flora International.** Organizations active in environmental advocacy include the **Green Alternative** and **Greens Movement of Georgia** (the Georgian partner of Friends of the Earth International).

Scientific institutions

Biology, zoology, botany, ecology and forestry departments of state universities, academic institutions belonging to the national systems of the Academies of Sciences, and national museums of natural history provide new knowledge about ecosystem dynamics, the health and dynamics of species populations and new thinking on conservation measures. Institutions from every part of the Ecoregion have participated in elaborating and in implementing the Ecoregion Conservation Plan.

4. PRIORITY PLACES AND SPECIES

4.1. Introduction

The Ecoregion Conservation Plan covers **four priority biomes - forest, freshwater and wetland, coastal and marine, and high mountain** - and **26 priority species** (Box 1). The priority biomes are where most of the Ecoregion's plant and animal biodiversity is concentrated and where the threats to biodiversity are greatest. The priority species are the species identified by experts as in need of special attention in the Ecoregion Conservation Plan.

Box 1 – *Priority species* [4]

Mammals
Caucasian leopard *(Panthera pardus saxicolor)*
Striped hyena *(Hyaena hyaena)*
Brown bear *(Ursus arctos)*
Lynx *(Lynx lynx)*
West Caucasian tur *(Capra caucasica)*
East Caucasian tur *(Capra cylindricornis)*
Caucasian red deer *(Cervus elaphus maral)*
Bezoar goat *(Capra aegagrus)*
Gmelin's mouflon *(Ovis ammon gmelini)*
Caucasian chamois *(Rupicapra rupicapra caucasica)*
Goitred gazelle *(Gazella subgutturosa)*
European bison *(Bison bonasus)*

Birds
Caucasian black grouse *(Tetrao mlokosiewiczi)*
Imperial eagle *(Aquila heliaca)*
Cinereous vulture *(Aegypius monachus)*
Marbled duck *(Marmaronetta angustirostris)*
White-headed duck *(Oxyura leucocephala)*

Amphibians
Caucasian salamander *(Mertensiella caucasica)*

Fish
Russian sturgeon *(Acipenser gueldenstaedtii)*
Persian sturgeon *(Acipenser persicus)*
Bastard sturgeon *(Acipenser nudiventris)*
Sterlet *(Acipenser ruthenus)*
Star sturgeon *(Acipenser stellatus)*
Atlantic (Baltic) sturgeon *(Acipenser sturio)*
Beluga *(Huso huso)*

The priority biomes comprise a huge area, well beyond the reach of the funding that is likely to be available; therefore **Priority Conservation Areas** (PCAs) have been identified and delineated so that limited funding can be directed to the most important areas for biodiversity conservation in the Ecoregion. The plans for priority biomes and priority species target these PCAs, in particular those that currently do not have sufficient protection in the protected areas system.

4.2. Priority biomes

Forest Biome

The forest biome covers 18.52 percent of the Caucasus Ecoregion and is the most important for biodiversity conservation in the Ecoregion. Mountain forests, which make up the greater part of the forest biome in the Caucasus Ecoregion, also play a critical role in preventing soil erosion and regulating water flow. Forest ecosystems harbour many endemic and relic species of plants and provide habitats for rare and endangered animals including six priority species: brown bear, Persian leopard, bezoar goat, Caucasian red deer, European bison and Caucasian salamander. Roe deer (*Capreolus capreolus*) and wild boar (*Sus scrofa*) feed on leaves, roots, and nuts in forests. Common otter (*Lutra lutra*) and European mink (*Mustela lutreola*) are associated with riparian forest ecosystems. Some of the priority species that live in the subalpine belt (West Caucasian and East Caucasian turs and Caucasian black grouse) use mountain forests as alternate feeding and wintering habitats.

Forests in the western Caucasus and the Talish Range contain most of the species endemic in the Ecoregion, notably endemic rock lizards of the Darevskia genus. The following species are also associated with forest landscapes to varying degrees: the endemic Caucasian adder (*Vipera kaznakovi*); the endemic Caucasian mud-diver (*Pelodytes caucasius*) and Caucasian toad (*Bufo verrucosissimus*); and several endemic rodents and insectivores, such as Robert's snow vole (*Chionomys roberti*), Caucasian mouse (*Apodemus ponticus*), Caucasian mole (*Talpa caucasica*), and Shelkovnikov's water shrew (*Neomys schelkovnikovi*). Many endemic invertebrates are also exclusively dependent on forest ecosystems, for example the Caucasian running beetle (*Carabus caucasicus*) and beech snail (*Helix buchi*).

Caucasian populations of European wild cat (*Felis silvestris*) and pine marten (*Martes martes*) are relatively abundant in forests; maintaining these populations is important for conservation of the species worldwide. Bird fauna in Caucasian forests is also quite rich: owls, such as eagle owl (*Bubo bubo*), seven species of woodpeckers, and various small passerines, including some whose European range is limited to the Near East such as the red-fronted serin (*Serinus pusillus*), coexist in Caucasian forests with widespread species of European birds.

A large part of the Ecoregion's broadleaved forests have already been cleared for growing crops. The area of chestnut forests has significantly decreased as a result of intensive logging of this valuable species for centuries. In north-western Iran only 12 percent of Arasbaran broadleaf forests, noted for their high number of endemic species, remain. In north-eastern Turkey broadleaf forests are cleared for tea and hazelnut plantations. Large areas of forest in the Ecoregion have also been converted to

4. The categories "focal species" and "species of special concern" used in the 2006 edition of the Ecoregion Conservation Plan have been combined into a single group of "priority species" in this edition.

pasture. Forests continue to be under pressure from unsustainable levels of logging for industrial timber and firewood and uncontrolled grazing by domestic livestock; many thousands of hectares of forest have become degraded. Climate change will increase the pressure on forest ecosystems.

Currently, only about 14% of forests are preserved in protected areas. In the long-term, an additional 10 percent of the forests in the Ecoregion should be given protection equivalent to IUCN categories I-IV. This would bring the area of protected forests to nearly a quarter of the Ecoregion's forested area.

Freshwater and Wetland Biome

Freshwater habitats cover 8.5 percent of the Ecoregion and are crucial for water conservation, spawning of fish, and for breeding and migratory birds. Freshwater ecosystems provide refuge to 10 priority species: white-headed duck, marbled duck, Russian sturgeon, Persian sturgeon, bastard sturgeon, sterlet, star sturgeon, Atlantic (Baltic) sturgeon and beluga. Freshwater habitats provide migration stopovers and nesting sites for globally-threatened birds such as Dalmatian pelican (*Pelecanus crispus*), Siberian crane (*Grus leucogeranus*), corn crake (*Crex crex*), lesser white-fronted goose (*Anser erythropus*), ferruginous pochard (*Aythya nyroca*), red-breasted goose (*Branta ruficollis*), black-winged pratincole (*Glareola nordmanni*), white-tailed sea-eagle (*Haliaeetus albicilla*), slender-billed curlew (*Numenius tenuirostris*) and sociable lapwing (*Vanellus gregarius*). Breeding populations of white winged scoter (*Melanitta fusca*) in southern Georgia are separated from the main Arctic range of this species by thousands of kilometres. Great and little egrets (*Egretta alba, E. garzetta*), night and gray herons (*Nycticorax nycticorax, Ardea cinerea*), black stork (*Ciconia nigra*), various terns and stints, diving ducks, and divers are also quite common in wetlands. Three species of harriers (*Circus* spp.) are found around wetlands.

The most common wetland mammals are water voles (*Arvicola terrestris*) and two large introduced rodents – the muskrat (*Ondatra zibethicus*) in uplands and nutria (*Myocastor coypus*) in lowlands. Large lakes and rivers provide habitat for the otter. The most abundant amphibians and reptiles are lake frogs (*Rana ridibunda*), grass snakes (*Natrix natrix, N. tessellata*), European marsh turtle (*Emys orbicularis*), and Caspian terrapin (*Mauremys caspica*) – the latter is found only in lowlands. More than 70 fish species occur in lakes and rivers and at least 14 are endemic to the Caucasus. Trout (*Salmo fario*) is the most common fish in the mountains. An endemic form of salmon (*S. ischchan*) lives in Lake Sevan. Two species of crayfish — Pyltsov crayfish (*Pontastacus pylzovi*) and Colchic crayfish (*Astacus colchicus*) – are relics and local endemics.

About 12% percent of the Ecoregion's freshwater ecosystems are currently preserved in protected areas. The largest concentration of freshwater ecosystems is within the Kura River Basin, with 1,020,198 ha of freshwater habitats. A diversity of mountain lakes and wetlands in the Javakheti-Lake Sevan region should be noted as well, encompassing 240,569 hectares of freshwater ecosystems considered highly important for biodiversity conservation. The second most valuable freshwater system is in the Manych-Gudilo region in Russia, with 720,835 ha of freshwater habitats. A significant part of the freshwater ecosystems in the Javakheti-Lake Sevan region are protected, but only a much smaller proportion of the freshwater habitats in the Manych-Gudilo region are conserved. In the long-term, at least an additional five percent of the freshwater habitats in the Ecoregion should be given protected status equivalent to IUCN Categories I-IV.

Coastal and Marine Biome

Coastal and marine habitats in the Caucasus Ecoregion include the coastline and in-shore waters of the Azov, Black, and Caspian seas. Altogether there are 3,725 kilometres of coastline in the Ecoregion, and all countries except Armenia have marine habitats.

Coastal areas of the Black Sea, especially near the mouth of the Rioni River, provide important habitats for four priority sturgeon species (Star sturgeon, Atlantic/Baltic sturgeon, Russian sturgeon and bastard sturgeon). Other fish include sprat (*Clupeonella cultriventris, C. engrauliformis*), mullet (*Mullus* spp.), herring (*Alosa* spp.), and salmon (*Salmo trutta labrax*). A significant proportion of fish and invertebrates in the Black Sea are relics of the time (over ten million years ago) when the joined basins of the Black and Caspian seas were completely separated from the Mediterranean. Most of these species are adapted to low levels of salinity, notably the commercially valuable species of sturgeon. These Caspian-Black Sea

relic species coexist today with widespread Mediterranean species, which penetrated into the Black Sea during a later period.

The Caspian and Azov seas are unique in the world in their diversity in species of sturgeon fish and contain important spawning areas and nurseries for many commercial fish, as well as rare and endemic species. All seven priority species of sturgeon live in these waters. Overfishing and uncontrolled poaching in the Caspian and Azov seas could lead to the dramatic decline of all sturgeon populations found in these two seas. Additionally, oil development, construction of transportation infrastructure (ports and pipeline terminals), tourism and recreation, and pollution threaten marine ecosystems and fish populations, resulting in biodiversity loss and impacting local economies.

The coastal and marine ecosystem also harbours important mammal species. Three species of dolphins found in the Black Sea and Sea of Azov (*Delphinus delphis, Tursiops truncatus, Phocoena phocoena*) are threatened. Two subspecies of dolphins are endemic to the Azov and Black seas, and all three species are protected under the Bonn Convention. The Caspian seal is endemic to the Caspian Sea.

The coastlines of the Black Sea and Caspian Sea and Sea of Azov offers habitats for large numbers of migrating waterfowl. Waders, gulls, ducks and other waterfowl are abundant here during the migration and breeding season in including two priority species: marbled duck and white-headed duck. Lesser kestrel (*Falco naumanni*), sociable lapwing (*Vanellus gregarious*), lesser white-fronted goose, red-breasted goose (*Branta ruficollis*) are some of the other notable bird species that migrate along the Caspian's coastal regions. Important habitats for birds are also located along the coast of the Black Sea in the Kolkheti Lowlands and along the Azov seashore in the delta of the Kuban River. Migrating birds of prey gather near Batumi in an important bottleneck: at least 27 species of raptors are found along the Black Sea coast.

Approximately 1.1 percent of the marine waters under the national jurisdiction of the Caucasus countries are afforded some sort of protection. 18.42 percent of the Caspian Sea coast and 14.78 percent of the Black Sea and Sea of Azov coast that lie within the Ecoregion are currently afforded protection. In total, 698 km of coastline or 16.86 percent of the Ecoregion's coastline falls under some sort of protection. In the long-term, at least an additional five percent of the marine and coastal habitats in the Ecoregion should be granted protection equivalent to IUCN Categories I-IV.

High Mountain Biome

High mountain habitats cover about 17 percent of the Ecoregion. Eight priority species use high mountain habitats: leopard, bezoar goat, West Caucasian tur, East Caucasian tur, Gmelin's mouflon, Caucasian chamois, Caucasian black grouse and imperial eagle. Upland landscapes provide habitats for common otter in wetlands and offer important feeding grounds for brown bear and red deer. High mountain meadows host several endemic reptiles, including three species of adders and five or six endemic lizards of the *Darevskia* genus, the endemic long-clawed mole-vole, several species of endemic birch mice (*Sicista* spp.), and snow voles (*Chionomys* spp.).

About 1,500 vascular plant species are found in the Greater Caucasus high mountains and around one third of these are endemics. Approximately 80 percent of the plant species in rock and scree communities on Colchic limestone ridges in the Greater Caucasus are endemic.

High mountains provide key habitats for large scavengers such as lammergeyer (*Gypaetus barbatus*), black vulture (*Aegypius monachus*), and griffon vulture (*Gyps fulvus*). Bird species not found in Europe, such as Eastern rock nuthatch (*Sitta tephrnota*), coexist here with widespread alpine species such as alpine chough (*Pyrrhocorax graculus*). A number of spectacular insects can be observed in uplands, including the Apollo butterfly (*Parnassius* spp.) and the alpine Capricorn beetle (*Rosalia alpina*).

High mountain habitats are affected by overgrazing, which impacts on plant species diversity and reduces the food base of mountain ungulates. Poaching puts significant pressure on large mammals and endemic birds in high mountain regions.

About 12 percent of the Ecoregion's high mountain habitats are afforded some sort of protection. The

most important parts of the Ecoregion for conservation of high mountain habitats are the Greater Caucasus Mountain Range and parts of the Lesser Caucasus Mountains and the Southern Highlands. The long term aim should be to grant protection equivalent to IUCN categories I-IV to at least an additional eight percent of the high mountain habitats in the Ecoregion.

4.3. Priority species

Caucasian leopard

The leopard is the rarest species in the Ecoregion. Widespread throughout the Caucasus a century ago it is now restricted to the Zangezur Range in Armenia and Azerbaijan (Nakhchyvan), the Talish Mountains, northern Iran, and in the eastern part of the Greater Caucasus Range and Iori-Mingechaur Priority Conservation Area. The Caucasian subspecies is listed in the IUCN Red List as Endangered (EN C2a) and it is listed in the "Red Books" of all the countries in the Ecoregion. The main threats to the leopard are poaching and overhunting of animals on which it primarily preys (tur, bezoar goat, mouflon, wild boar, chamois, and roe deer). A leopard conservation strategy has been developed for all six countries of the Ecoregion and national action plans have been elaborated for Armenia, Azerbaijan and Georgia.

Striped Hyena

Although the striped hyena is listed as Near Threatened in the IUCN Red List, in the Caucasus species is on the verge of extinction. Striped hyenas live in plains ecosystems, including arid habitats and floodplain forests. The animal used to be widespread in the eastern Caucasus up to Tbilisi, but hyena numbers fell drastically in the second half of the 20th century due to persecution by hunters and habitat loss to agriculture. Only a few hyenas remain within a very small range in the south-eastern Caucasus plains (in the southern Armenia, in Azerbaijan and a small part of Georgia). Exact data on the number of hyenas or the condition of the population have not been collected. Measures need to be taken to involve local people in hyena conservation and to strengthen regulations and fines for killing hyenas.

Brown Bear

The brown bear is a keystone species[5] and top predator in the food chain in most habitats in the Caucasus. The brown bear can serve as an indicator species, reflecting the state of ecosystems and biodiversity as a whole. Generally, the brown bear occupies mountain forests, but it also occurs in high mountain meadows and open plains woodlands. Poaching is the main threat along with habitat loss. The Caucasian population of the brown bear has declined drastically in recent decades. In Georgia, for example, the population has decreased by a third in the past 15-20 years. While the brown bear is categorised in the IUCN Red List as Least Concern, the total number in the Caucasus Ecoregion does not exceed 3,000 individuals, warranting protection measures. According to scientists, there are four subspecies of brown bear in the Ecoregion with complicated interrelations and overlapping ranges. Two of these subspecies are endangered and in need of immediate protection.

Lynx

Lynx is listed as Near Threatened by IUCN. Due its secretive habits and the absence of special studies devoted to its biology in the Caucasus, the exact distribution of lynx is unknown and even a rough estimation of the population size is not possible. Trends in population dynamics are similarly unknown. Special studies are needed to estimate the range and the approximate density of the species.

West and East Caucasian Turs

The West and East Caucasian turs are endemic to the Greater Caucasus Range. The West Caucasian tur is listed in the IUCN Red List as Endangered and the East Caucasian tur as Near Threatened. Turs live in the high mountains from 2,000 to 4,000 m above sea level. The main threat to the tur is poaching. Recent data suggests that there are around 3,500 to 4,000 West Caucasian turs and about 25,000 East Caucasian turs in the Ecoregion. Uncontrolled hunting could threaten the long-term sustainability of tur populations. Quota levels and licensing procedures differ in each country and need to be harmonized

5. A **keystone species** is a species that has a disproportionately large effect on its environment relative to its abundance. Keystone species play a critical role in maintaining the structure of an ecological community, affecting many other organisms in an ecosystem and helping to determine the types and numbers of various other species in the community.

to improve tur management.

Caucasian Red Deer

The Caucasian subspecies of red deer is one of the most endangered animal in the South Caucasus. Few specimens of red deer still remain in Armenia and the species is listed in the country's Red Data Book as critically endangered. In Georgia two isolated populations of fewer than 150 deer remain in the Borjomi-Kharagauli National Park in the Lesser Caucasus Mountain Chain and around 200 deer are left in the Lagodekhi Strict Nature Reserve in the Greater Caucasus Range in eastern Georgia. Fewer than 600 red deer are left in Azerbaijan in protected areas of the Greater Caucasus Range. Turkey and Iran also harbour small populations. In Russia, several thousand red deer are found along the Greater Caucasus Range. Over the past few decades, deer populations have decreased, though the exact number of deer remaining is unknown. In Russia, red deer are legally hunted, while in the South Caucasus the species is legally protected. Throughout the Caucasus Ecoregion, poaching, habitat loss to pasture lands, and long-term isolation of red deer populations have caused deer numbers to decline, resulting in inbreeding in some populations. Measures need to be taken to reduce poaching, monitor deer population dynamics, and connect the isolated groups. Efforts are required to coordinate management practices for red deer in Azerbaijan, Georgia, and Russia. Reintroduction programme for red deer needs to be conducted in Armenia to recover this species in Dilijan National Park.

Bezoar Goat

The bezoar goat has been driven to extinction in many parts of its former range. It is listed in the IUCN Red List as Vulnerable and is included in the national red lists of Georgia, Armenia, Azerbaijan, and Russia. Today, there are several isolated populations of bezoar goats in Dagestan, in central and southern Armenia and the bordering part of Nakhchyvan (Azerbaijan). Small populations live in Georgia on the border with Dagestan, in the Turkish Caucasus and in northern Iran. These remnant populations are separated by nearly 500 km. Steps need to be taken to increase protection of the bezoar goat and allow the exchange of genes between the isolated populations to reduce chances of inbreeding. Local people need to be included in conservation activities, since poaching is the major threat to the animal.

Gmelin's Mouflon

The rare mouflon is an endemic subspecies of wild sheep, the ancestral form of modern domestic sheep. The mouflon is agile at climbing steep mountain slopes. The animals prefer dry, open slopes in the mountain steppe zone. Numbers of Gmelin's mouflon decreased steadily throughout the 20th century as a result of habitat loss and poaching. Today there are no more than several hundred of the animals left in southern Armenia and in the Nakhchyvan Autonomous Republic in Azerbaijan. This species is listed in the IUCN Red List as Vulnerable. There are a few herds of mouflon in Turkey, as well as in some areas along the Turkish-Iranian border. Mouflons also remain in small numbers on the border between Iran and Azerbaijan (Nakhchyvan Republic) and in the Sabalan Mountains. Measures need to be taken to preserve mouflon habitat and increase protection of the animal.

Caucasian Chamois

The range and population of the Caucasian sub-species of chamois has decreased drastically over the past century. Although data on chamois numbers are scarce, it is thought that approximately 3,500 chamois remain in the Kavkazsky Strict Nature Reserve in Russia, and a much smaller population resides in other parts of the Greater Caucasus, as well as in the Lesser Caucasus Mountain Chain within Georgia and Turkey. The greatest threat to survival of the chamois comes from poaching and habitat lost for pastures. The populations are highly isolated due to habitat fragmentation, which could lead to inbreeding. The lack of research on the current status of the animal hinders conservation efforts. Some of the Caucasus countries have listed the chamois in their national Red Books, while others have not. Coordinated approaches to chamois conservation and synchronization of the species' protected status among countries are necessary to save the animal from disappearance.

Goitred Gazelle

The goitred gazelle (*Gazella subgutturosa*) is listed in the IUCN Red List as Vulnerable and in the national red list of Azerbaijan. The gazelle is found in steppe and semi-desert habitats and open juniper

woodlands. Pressured by poaching and the loss of steppe and semi-desert habitat to agricultural development in eastern Caucasus lowlands, the population fell to catastrophically low levels and in 1961 only 130 animals were left near the mouth of the Kura River. Conservation me-asures, including creation of the Byandovan Sanctuary in 1961 and the Shirvan Strict Nature Reserve in 1969, helped save the population from extinction in the South Caucasus. Gazelle numbers in the Shirvan protected areas (Shirvan National Park, Shirvan Strict nature Reserve and Byandovan Sanctuary) have grown to more than 5,000 today. A small population of 300 gazelles lives in the Korchay Sanctuary. Recently measures have been taken to reintroduce the animal into parts of its former historical range: in Ag Gol national park in Azerbaijan and in the north west of Azerbaijan; and in Vashlovani national park in Georgia in cooperation with Turkey; re-introduction from Azerbaijan is also envisaged.

European bison

The European bison is the largest herbivore in Europe. Historically it was distributed throughout the Caucasus and western, central, and south-eastern Europe. The Caucasus population became extinct by 1927. The species was reintroduced to the North Caucasus but it is once again under threat there: there are just over 70 bisons remaining in two nature reserves in the Russian Caucasus.

Caucasian Black Grouse

The Caucasian black grouse inhabits areas above the timberline in the Greater and Lesser Caucasus mountains. The presence of shrub vegetation to provide shelter for the bird is critical. In the Western Caucasus the black grouse is usually found among Caucasian alpine rose (*Rhododendron caucasicus*) thickets. The birds stay in groups and especially high concentrations are observed in spring at display grounds. The distribution is continuous in the Greater Caucasus, where the population numbers several tens of thousands In the Lesser Caucasus the distribution is patchier and the number of birds is probably much lower (except in the Dogu Karadeniz Mountains in north-eastern Turkey). Habitat loss and fragmentation due to unsustainable land use are the most significant threat. Poaching and human disturbance among the smaller, isolated populations of black grouse also threaten the species. This species is listed by IUCN as a species for which data are deficient. Protection measures may include creation of small-sized reserves in important habitats for the black grouse.

Imperial Eagle

The Imperial eagle is found primarily in the south-eastern part of the Ecoregion, in lowland forests along the several rivers, and in lowlands and foothills westward to the eastern slopes of the Trialeti Ridge. The Imperial eagle is classified as Vulnerable at the global level by IUCN and Endangered at the European level by BirdLife International. In Europe the eagle has suffered a rapid decline in recent decades, and the species is now extremely rare or extinct in many areas. The main threat to the Imperial eagle is the disappearance of habitats due to deforestation of lowlands and foothills. Other major threats and limiting factors include poaching and human disturbance, nest robbing, illegal trade, and poisoning.

Cinereous Vulture

Cinereous vultures (also known as Eurasian black vultures) feed on carrion and nest in loosely knit groups. Cinereous vultures prefer areas with pine, juniper, and oak. The cinereous vulture is classified by IUCN as Near Threatened globally; numbers are decreasing in the Caucasus. Waste from the animal husbandry industry in this country provides abundant food for vultures. As with many other mountain species, the vulture occurs in lowlands in winter. The range and abundance of the cinereous vulture has declined as a result of persecution (for example, poisoning) and alteration of nesting habitat.

Marbled Duck

The marbled duck occurs sporadically in Georgia but is more common in Armenia, Azerbaijan, and Iran on lowland lakes. Its population fluctuates partly in response to annual variations in rainfall. The marbled duck is capable of dispersing widely in search of suitable habitat. It is less dependent on invertebrates and relies more on small seeds than other ducks of the northern Temperate Zone. Marbled duck appears to have suffered a rapid population decline, according to numbers in its core wintering range, largely a result of extensive habitat destruction. Over 50 percent of the duck's suitable habitat may have been destroyed during the 20th century. Other major threats are poaching and unsuitable water levels at wintering sites. Wetlands are drained for agriculture across its range. The species is listed as Vulnerable by IUCN.

White-headed Duck

Within the Caucasus Ecoregion significant populations of white-headed ducks breed primarily in Russia, Turkey, Iran, and Armenia. The duck's preferred habitats include freshwater or brackish, alkaline, and eutrophic lakes, which are frequently temporary or semi-permanent. Ponds in which the ducks breed have dense vegetation around the fringes and are generally small or enclosed areas within a larger wetland system. A stable water level during the incubation period is vital for successful breeding. In the Caucasus, one of the most important wintering areas is in Azerbaijan; wintering birds probably arrive here from Kazakhstan. The white-headed duck is classified as Endangered at the global level by IUCN and at the European level by BirdLife International. The species' range and population size have declined as a result of hunting and habitat degradation. Another major threat is the variation of water levels at wintering sites.

Caucasian Salamander

The Caucasian salamander is an endemic of the western Lesser Caucasus Mountain Chain. Its range extends through the westernmost part of the Trialeti Mountain Range, Meskheti, and the Giresun Mountains west to Giresun in north-eastern Turkey. It is listed by IUCN as Vulnerable. The salamander occurs in the upper reaches of mountain rivers and in small streams (from sea level to 2,000 m). 24 local populations are known across Georgia to Turkey. Based on the distribution of small mountain streams in the Georgian part of the species' range, several dozen local populations are probably located in tributaries of the Kura, Choruh (Chorokhi), and Kintrishi rivers. One local population usually consists of several hundred individuals. Geographic populations from the watershed of the Kura River (which belongs to the Caspian Sea Basin) and rivers in the Black Sea Basin show fixed genetic differences, and are likely different species which have been isolated for more than five million years. The most significant threat to the salamander is destruction of the animals' refuges due to extensive timber harvesting. Effective protection measures would include creation of small-sized reserves encompassing the most important habitats.

Sturgeon

The Ecoregion Conservation Plan's priority species include seven species of sturgeon. Russian, Persian, bastard, and star sturgeon, and beluga are all listed as Endangered by IUCN. Atlantic (Baltic) sturgeon is Critically Endangered, while starlet is Vulnerable. Although populations of all these species are threatened they are still commercially fished. In the Azov Sea, the bastard and Atlantic sturgeon are on the verge of extinction. In the Kuban River the starlet and Azov Sea beluga (*H. huso maeotica*) have nearly disappeared. The Black Sea is the last global habitat for the Atlantic (Baltic) sturgeon, which is nearly extinct. The Rioni River in Georgia is the only spawning area for the European form of Atlantic sturgeon within the Caucasus. Overfishing and uncontrolled poaching in the Caspian and Azov seas threaten all species of sturgeon in the two seas. When sturgeons swim upstream to spawn, they are also poached or unable to reproduce in rivers that are dammed or polluted. Water levels in rivers are declining due to irrigation and unsustainable water use.

4.4. Priority conservation areas

56 Priority Conservation Areas (PCAs) have been delineated for the Ecoregion Conservation Plan in order to focus conservation actions on the most important areas for biodiversity conservation (see the map at annex 2). The first step in defining the PCAs was to identify key taxons and the areas important for them. Then the important areas for all taxons were overlaid, habitat representation in the overlay was evaluated and PCAs identified and delineated.

In a subsequent step, corridors (CRs) were identified to ensure connectivity between the PCAs so that birds, fish, and other animals capable of migration could do so and to maintain viable populations by ensuring genetic exchange. Then gaps in the PA network in each of the PCAs and corridors were identified. Finally the PCAs were ranked in terms of urgency and opportunity for conservation action.

The total area of the Ecoregion's PCAs is 14 million hectares, covering about 24 percent of the Ecoregion's entire territory. Most of the PCAs coincide with mountain ranges; for example 11 priority areas are in the Greater Caucasus, 19 in the Lesser Caucasus and Southern Highlands, and two in the Talish-Alborz Range.

PCAs should not be thought of as blocks of natural habitats which need to be protected in their entirety; rather they indicate important areas where urgent conservation measures are required. Measures may include zoning for different forms of land-use (agriculture, industry, infrastructure development and biodiversity conservation), planning of protected areas, identification of wildlife corridors, delineating areas for natural resource use, and actions to improve the framework conditions for biodiversity conservation for example institutional strengthening, law enforcement, and awareness building.

Identification of PCAs and CRs presented in this document is expert driven approach, which does not necessarily reflect governmental vision on national priority areas for nature conservation.

5. THE ECOREGION CONSERVATION PLAN

5.1. Structure

The Ecoregion Conservation Plan consists of:

- action plans for each of the priority biomes, focused on the Priority Conservation Areas;
- action plans for priority species;
- sitting above the plans for the priority biomes and priority species, an action plan for improving the framework conditions for achieving the vision of the ECP.

The plan is presented in a series of tables:

A. Plan for improving the framework conditions for achieving the goals of the ECP.
B. Plan for forest ecosystems.
C. Plan for freshwater ecosystems.
D. Plan for coastal and marine ecosystems.
E. Plan for high mountain ecosystems.
F. Plan for priority species.

Each of the tables sets out long and medium targets, the relevance of the medium-term targets to the strategic goals and targets of the CBD Strategic Plan for Biodiversity 2011-2020, actions to be taken by 2015, the countries in which the actions are applicable, the respective PCAs, and a cross-reference to Priority Biomes.

5.2. Implementation and Monitoring

The Caucasus Biodiversity Council (CBC) will continue to support the efforts of governments of the Caucasus region and other conservation actors to implement the Ecoregion Conservation Plan. The Council will also continue to monitor progress towards the targets that are set out in the Plan. The CBC envisages a full review of the Plan by 2016.

TABLE A. PLAN FOR IMPROVING THE FRAMEWORK CONDITIONS FOR ACHIEVING THE GOALS OF THE ECP

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
A1. Effective regional mechanisms are in place that support national actions to achieve the goals of the ECP.	A1.1. Fulfilment of ECP targets is systematically monitored.	Strategic Goal E	A1.1.1. Run the Caucasus Biodiversity Council with the involvement of representatives of relevant governmental organizations and NGOs from the six countries of the Ecoregion.	Ecoregion	All PCAs and CRs	All PBs
	A1.2. The countries of the Ecoregion are cooperating to develop regional species' Red Lists that complement national red lists.	Target 12	A1.2.1. Develop an Ecoregional Red List in accordance with IUCN criteria.	Ecoregion	All PCAs and CRs	All PBs
	A1.3. An Ecological Network plan for the entire Caucasus Ecoregion is agreed by all the countries of the Ecoregion based on the ECP's long-term vision for biodiversity conservation.	Target 11	A1.3.1. Develop a framework for, and then elaborate, an Ecological Network plan for the entire Caucasus Ecoregion applying appropriate methodologies such as KBA and taking into account climate change tendencies according to national climate change forecasts.	Country based	All relevant PCAs and CRs	All PBs
			A1.3.2. Create a legal framework that provides for recognition of, and support to, Indigenous Community Conservation Areas (ICCAs) in the Caucasus Ecoregion based on resolutions 4.049, 4.050, 4.053 of the4th World Conservation Congress.	Iran and other interested countries	All relevant PCAs and CRs	All relevant PBs

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
	A1.4. Agreements are made between countries of the Ecoregion to facilitate bilateral or multilateral initiatives on nature conservation; e.g: establishment of transboundary PAs; programmes for reintroducing of priority species.	Targets 5, 11, 12	A1.4.1. Develop relevant documents for transboundary cooperation along Turkey-Georgia border.	Turkey, Georgia	PCA 54, 51	Forest, High mountain, Freshwater
			A1.4.2. Develop relevant documents for transboundary cooperation along Armenia-Georgia border.	Armenia, Georgia	PCA 51	High mountain, Freshwater
			A1.4.3. Develop relevant documents for transboundary cooperation along Azerbaijan-Georgia border.	Azerbaijan, Georgia	PCA 16, 22	Forest, High mountain, Freshwater
			A1.4.4. Develop relevant documents for transboundary cooperation along Azerbaijan-Russia border.	Azerbaijan, Russia	PCA 16, 19	Forest, High mountain
			A1.4.5. Develop relevant documents for transboundary cooperation along Armenia-Iran border.	Armenia, Iran	PCA 41, 42, 43	Forest, High mountain
A2. The goals of the ECP are supported by effective national policies and legal frameworks.	A2.1. Appropriate instruments support the maintenance of healthy ecosystems and viable populations of wildlife.	Targets 1, 10, 12, 18	A2.1.1. In parallel with the development of a regional Red List (action A1.2.1 above), regularly update National Red Lists taking into account IUCN criteria and assist in determining regional and national conservation priorities.	Country based	All PCAs and CRs	All PBs

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
			A2.1.2. In parallel with the elaboration of the regional Ecological network plan, strengthen as necessary national strategies and legal instruments (including the legal framework for ecological corridors, where applicable) for PA development and governance, having regard to IUCN's protected area matrix[6].	Country based	All relevant PCAs and CRs	All PBs
			A2.1.3. Incorporate the principle of adaptive management in hunting and fishing regulations and in the determination of quotas.	Armenia, Azerbaijan, Georgia, Iran, Turkey	Selected PCAs and CRs	All PBs
			A2.1.4. Establish a legal basis for the active participation and involvement of local community organizations in creating a mechanism for allocating a share of income from resource use licenses to local communities.	Iran	Selected PCAs and CRs	All relevant PBs
			A2.1.5. Develop and implement awareness raising and capacity building programmes for hunters, hunting associations and local communities.	Armenia, Azerbaijan, Georgia, Iran, Turkey	Selected PCAs and CRs	All PBs

6. IUCN's protected area matrix is a classification system for protected areas comprising both management category and governance type. See: Dudley, N. (Editor) (2008). Guidelines for Applying Protected Area Management Categories. Gland, Switzerland: IUCN.

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
			A2.1.6. Integrate important conservation/species areas methodologies (e.g. KBA, IBA, IPA, etc.) into relevant policies and legislation.	Country based	All PCAs and CRs	All PBs
	A2.2. National legislation is aligned to relevant international norms.		A2.2.1. Take steps to harmonize legislation with related EU directives and improve institutional structures.	Turkey, Georgia and other interested countries	All relevant PCAs and CRs	All PBs
A3. Capacity exists in all of the countries of the Ecoregion to achieve the goals of the ECP.	A3.1. Staff of nature protection agencies are qualified to implement national environmental policies and the obligations of international conventions.	Strategic Goal E	A3.1.1. Provide support to nature protection agencies for implementing international conventions (CBD, CMS, CITES, Ramsar, Convention Concerning the Protection of the World Cultural and Natural Heritage, UNCCD and UNFCCC).	Country based	All relevant PCAs and CRs	All PBs
	A3.2. Institutional capacity to halt poaching and illegal trade in wildlife and natural resources is strengthened.	Strategic Goal E	A3.2.1. Carry out trainings for customs officials, forest rangers, enforcement agencies, CBOs and other authorities.	Iran and other interested countries	All relevant PCAs and CRs	All PBs
			A3.2.2. Support voluntary anti-poaching brigades in important PAs, such as Daghestansky, North Osetinsky and Chornie Zemli.	Russia	CR 13, PCA 15, 16	Forest, High mountain, Marine
	A3.3 NGOs and relevant government organisations involve local communities in planning and decision-making.	Strategic Goal E	A3.3.1. Capacity building activities for stakeholders at different levels.	Countries based	All relevant PCAs and CRs	All PBs
			A3.3.2. Strengthen as necessary national strategies and legal instruments to allow for a range of different governance types.	Countries based	All relevant PCAs and CRs	All PBs
	A.3.4 local governments and communities have the necessary skills and tools for effective transboundary cooperation on biodiversity conservation.		A.3.4.1 Capacity building activities and training for communities in PCAs and CRs for joint transboundary activities.	Interested countries	All relevant PCAs and CRs	All PBs

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
A4. All of the PAs in the Ecoregion are effectively managed.	A4.1. Financing of the PAs in the Ecoregion is adequate and sustainable with attention paid to the IUCN protected area matrix.	Target 20	A4.1.1. Support further development of the CNF to increase PA management effectiveness in the CNF's partner countries.	CNF's partner countries	All relevant PCAs and CRs	All PBs
	A4.2. PA stakeholders (including governments and local communities) have the necessary skills and tools for effective conservation of biodiversity.	Strategic Goal E	A4.2.1. Conduct trainings in each country for PA stakeholders including PA staff, NGOs and community representatives based on specific, assessed needs such as payments for environmental services (PES), gap analysis of Ecoregion.	Ecoregion	All relevant PCAs and CRs	All PBs
	A4.3. All PAs and ICCAs in the Ecoregion are managed according to management plans that have been prepared with the participation of local communities, and ICCAs are recognized in an appropriate ways.	Target 11	A4.3.1. Develop and adopt guidelines for participatory management planning for PAs and ICCAs.	Country based	All PCAs and CRs	All PBs
			A4.3.2. Develop management plans for all PAs using a participatory approach and update them periodically.	Country based	All relevant PCAs and CRs	All PBs
	A4.4. All countries of the Ecoregion regularly carry out national protected area management effectiveness assessments.	Target 11	A4.4.1. Assess management effectiveness of the PA systems of every country of the Ecoregion every 5-years using RAPPAM and other relevant methodologies.	Country based	All relevant PCAs and CRs	All PBs
	A4.5. A system of monitoring biodiversity in selected PAs throughout the Ecoregion is established and functioning effectively.	Target 19	A4.5.1. Implement a system for monitoring priority species in at least one PA in each country of the Ecoregion.	Country based	Selected PAs in PCAs and CRs	All relevant PBs

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
A5. Nature-based tourism provides income to support the PA system and local communities.	A5.1. Framework and capacity for sustainable nature-based tourism are in place and integrated into PA planning and management.	Target 4	A5.1.1. Collect and disseminate information about best experiences on sustainable-nature based tourism in model communities of at least three countries in the region.	Selected countries	Selected PCAs	High Mountain, Freshwater, Marine
			A5.1.2. Launch at least one model project on participatory planning and conducting sustainable nature-based tourism activities.	Selected country	Selected PCAs and CRs	High Mountain, Freshwater, Marine
A6. International recognition supports improvement of PA management.	A6.1. More World Heritage Sites and Biosphere Reserves are established in the Ecoregion.	Target 11	A6.1.1. Prepare at least three nominations, including one transboundary area, for inscription on the UNESCO World Heritage List.	Selected countries	Selected PCAs and CRs	Relevant PBs
			A6.1.2. Establish at least one more Biosphere Reserve in the Ecoregion recognized by UNESCO.	Selected countries	Selected PCAs and CRs	Relevant PBs
	A6.2. More PAs in the Ecoregion are certified by PanParks.	Target 11	A6.2.1. Provide the support necessary for two more PAs in the Ecoregion to achieve PanParks certification and/or European Diploma Area.	Selected countries	Selected PCAs and CRs	Relevant PBs
A7. Regional research, information, and learning centres work to increase and transfer knowledge of biodiversity issues in the Ecoregion.	A7.1. The Caucasus regional biodiversity monitoring network and information database are in place.	Target 19	A7.1.1. Further develop the database and website and the mechanism for updating the database.	Ecoregion	All PCAs and CRs	All PBs
	A7.2. National academic and research institutions effectively execute research in the field of biodiversity conservation.	Target 19	A7.2.1. Advance the capacity of academic and research institutions in the field of biodiversity conservation.	Country based	Selected PCAs and CRs	Relevant PBs

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
			A7.2.2. Promote cooperation between academic and research institutions and conservation practitioners.	Country based	Selected PCAs and CRs	Relevant PBs
	A7.3. The regional viable structure and platform exist in the Caucasus to continuously ensure global knowledge transfer and effective delivery of conservation efforts.	Target 19	A7.3.1. Develop an institutional framework and elaborate strategic plan acceptable for all stakeholders.	Ecoregion	All PCAs and CRs	All PBs

TABLE B. PLAN FOR THE CONSERVATION AND SUSTAINABLE USE OF FOREST ECOSYSTEMS

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
Conservation						
B1. Representative forests and associated biodiversity of the Greater Caucasus Range are effectively preserved in a network of PAs and linking corridors.	B1.1. An additional 150,000 ha of forests are given PA status. Management of at least 150,000 ha of forest in existing PAs in the Greater Caucasus is improved.	Target 11	B1.1.1. Establish the Racha National Park.	Georgia	PCA 14	High mountain
			B1.1.2. Establish the Svaneti National Park.	Georgia	PCA 13	High mountain
			B1.1.3. Establish the Khevsureti National Park.	Georgia	PCA 15	High mountain
			B1.1.4. Establish a Nature Park in Krasnodar Region.	Russia	PCA 11	freshwater/wetlands
			B1.1.5. Create the Samursky National Park based on the existing Sanctuary.	Russia	PCA 19	Forest/wetlands
			B1.1.6. Extend the Kazbegi National Park, develop management plan and infrastructure.	Georgia	PCA 15	High Mountain
			B1.1.7. Improve management and develop infrastructure of the Shahdagh National Park.	Azerbaijan	PCA 21 CR 29	High mountain
			B1.1.8. Continue to improve the management of Zagatala nature reserves.	Azerbaijan	PCA 17	High mountain
			B1.1.9. Optimize the territories of the Caucasus Nature Reserve and the Sochi National Park.	Russia	PCA 11	High mountain

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
			B1.1.10. Develop the structure of the Dagestansky Nature Reserve by including Tlyaratinsky protected area.	Russia	PCA 16	High mountain
	B1.2. Transboundary cooperation is initiated in at least one PCA.	Target 11	B1.2.1. Initiate transboundary cooperation between Protected Areas in the Eastern Greater Caucasus Lagodekhi-Zaqatala	Azerbaijan, Georgia	PCA 16	High mountain
			B1.2.2 Initiate transboundary cooperation between Protected Areas in the Eastern Greater Caucasus Zaqatala-Dagestanski.	Azerbaijan, Russia	PCA 16	High mountain
B2. Representative forests and associated biodiversity of the Lesser Caucasus Range are effectively preserved in a network of PAs and linking corridors.	B2.1. An additional 50,000 ha of forests are given PA status. Management of at least 100,000 ha of forest in existing protected areas in the Lesser Caucasus is improved.	Target 11	B2.1.1. Establish the Machakhela Protected Areas.	Georgia	PCA 54	forest
			B2.1.2. Establish Tetrobi sanctuary in the support zone of Borjomi-Kharagauli National Park.	Georgia	PCA 27	High mountain
			B2.1.3.Extend the Algeti National Park.	Georgia	PCA 55	
			B2.1.4. Establish a corridor in the northern and western parts of the Lesser Caucasus.	Georgia	PCA 27, 54 CR 16	High mountain
			B2.1.5. Elaborate management plans and develop infrastructure for Arevik National Park and Zangezur Sanctuary.	Armenia	PCA 42, 43 CR 42, 43	High mountain

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
			B2.1.6. Continue improving the protection regime and management of Shikahogh and Khosrov strict nature reserves.	Armenia	PCA 42, 43, 49	High mountain
			B2.1.7. Improve the management of forest sanctuaries.	Armenia	All relevant PCAs and CRs	High mountain, Freshwater
			B2.1.8. Strengthen management of Zangezur Strict Nature Reserve.	Azerbaijan	PCA 45	High mountain
			B2.1.9. Establish forest reserve/ PA in borderland with Azerbaijan.	Iran	PCA 37	Forest
			B2.1.10. Improving protection level of Cheslee No Hunting Area to Protected Area.	Iran		Forest
			B2.1.11. Improve protection of the Arasbaran Nature Reserve (MAB) in Iran.	Iran	PCA 44	High mountain
			B2.1.12. Improve management of PAs in Jamili (Gorgit and Efeler nature reserves).	Turkey	PCA 54	forest
			B2.1.13. Plan a national park in the Erusheti Range.	Georgia	PCA 54	High mountain
	B2.2. Transboundary cooperation is established in at least one PCA.	Target 11	B2.2.1 Establish bilateral cooperation between protected areas adjoining at the Turkey-Georgia border; e.g. Jamili - Machakhela	Georgia, Turkey	PCA 54	High Mountain
B3. Representative forests and associated biodiversity of the Tallish-Western Alborz Region are effectively preserved in a network of PAs and linking corridors.	B3.1. An additional 10,000 ha of forests is included in PAs. Management of at least 50,000 ha of forest in existing protected areas in Tallish-Western Alborz is improved.	Target 11	B3.1.1. Update the management plan and further develop the infrastructure of the Hyrcan National Park.	Azerbaijan	PCA 37	Forest

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
B4. Representative forests in the plains of the Kura River catchment basin are conserved and effectively managed.	B4.1. Management is improved on at least 10,000.	Target 11	B4.1.1. Develop management plan and infrastructure of Garayazy Nature Reserve.	Azerbaijan	PCA 28	Freshwater/forest
			B4.1.2. Develop management plan for Eldar Pine Nature Reserve.	Azerbaijan	PCA 22	Freshwater/forest
			B4.1.3. Improve conservation and management of four sanctuaries in floodplain forests of Eastern Georgia.	Georgia	PCA 22	Freshwater/forest
	B4.2 Transboundary initiatives for conservation of forests in the Kura- Aras plains are in place.	Target 11	B4.2.1. Initiate transboundary cooperation in at least one PCA.	Azerbaijan, Georgia	All relevant PCAs	Freshwater/forest
Management						
B5. Forests are managed effectively, management policies and practices take account of the potential impact of climate change, illegal logging is eliminated and conservation of biodiversity is taken into account in forestry practices.	B5.1. Logging and timber trade practices and their potential impact have been assessed.	Target 5	B5.1.1. Develop a methodology for assessing impacts and extent of illegal and unsustainable logging in at least three countries.	Interested countries	Selected PCAs and CRs	High mountain, Fresh water
			B5.1.2. Assess the scale of illegal and unsustainable logging and their medium-term impact in at least three countries.	Interested countries	Selected PCAs and CRs	High mountain, Fresh water

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
			B5.1.3. Assess the legal frameworks of at least three countries of the Ecoregion for verifying the origin of forest products, including the existing wood tracking system, and make recommendation for improving the legislation.	Interested countries	All forest PCAs and CRs in selected countries	High mountain, Fresh water
			B5.1.4. Organize a regional workshop on cross-boundary timber trade for key stakeholders.	Interested countries	Relevant PCAs and CRs	High mountain, Fresh water
			B5.1.5 Assess forest ecosystems which are vulnerable or resistant to climate change impacts.	Selected countries		
			B5.1.6. Establish of National forest assessment, monitoring and early warning system.	Iran and selected countries	All forest PCAs	forest
	B5.2. Forests are classified according to the internationally acknowledged ecosystem approach in at least three countries of the region.	Target 5	B5.2.1. Adopt relevant methodology and develop guidelines for classification in at least one country of the region.	Georgia and other interested countries	All forest PCAs and CRs	High mountain, Fresh water
			B5.2.2. Develop guidelines on the identification of High Conservation Value Forests (HCVF) in at least three countries of the region.	Selected countries	Selected PCAs and CRs	High mountain, Fresh water
			B5.2.3. In at least 2 countries of the Ecoregion establish a normative framework for applying the concept of High Conservation Value Forest (HCVF) in forest management.	Selected countries	All forest PCAs and CRs in selected countries	High mountain, Fresh water
			B5.2.4. Conduct training in forest classification and delineation of HCVF for forest management agencies and enterprises in at least three countries of the region.	Selected countries	Selected PCAs and CRs	High mountain, Fresh water

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
B6. Forest certification is established and functioning in the Caucasus Ecoregion according to international standards.	B6.1. Capacity of forest managers in the Ecoregion is created to achieve voluntary forest certification.	Target 5	B6.1.1. Conduct regional workshop on voluntary forest certification.	Selected countries	All forest PCAs and CRs	High mountain, Fresh water
			B6.1.2. Prepare feasibility study for implementing voluntary certification in at least three countries. Develop and submit follow-up project proposals to relevant donors.	Selected countries	All forest PCAs and CRs	High mountain, Fresh water
			B6.1.3. In at least one country of the Ecoregion develop sustainable forest management standards as a basis for voluntary forest certification and to strengthen regulations governing forest use.	selected countries	All forest PCAs and CRs	High mountain, Fresh water
B7. Traditional rights to use forest resources are respected.	B7.1. Legislation guarantees the traditional rights of local communities to forest resources.	Target 18	B7.1.1. In at least two countries of the Ecoregion develop regulations to guarantee local community rights to use forest resources.	Selected countries	All forest PCAs and CRs in selected countries	High mountain, Fresh water
B8. Forests are resilient to the expected impacts of climate change.	B8.1. Strategies are in place for increasing the resilience of forests to climate change and decrease forest degradation.	Target 15	B8.1.1. Develop a strategy for the adaptation of forests to climate change covering at least three countries of the Ecoregion.	all countries of the region	All forest PCAs and CRs	High mountain, Fresh water
Restoration						
B9. The area of forests is increased using native species in forest PCAs and CRs in the Ecoregion taking into account the potential impact of climate change.	B9.1. Forest is restored on 20,000 ha of degraded forest land using the Forest Landscape Restoration (FLR) approach with clear biodiversity and socio-economic goals, and taking into account climate trends.	Target 14	B9.1.1. Develop methodology for forest landscape restoration and prepare and implement restoration plans for pilot sites.	All countries of the region	Selected PCAs and CRs	High mountain, Fresh water

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
			B9.1.2. Develop and start to implement strategies for restoring at least 10,000 ha of degraded forest with native species with the involvement of local people.	Armenia, Azerbaijan, Georgia and other interested countries	All forest PCAs and CRs	High mountain, Fresh water
	B9.2. A strategy for transforming at least 10,000 ha of mono-cultural forest plantations into forest stands that are more resilient to climate change is being implemented.	Targets 10, 15	B9.2.1. Develop transformation methodology and plans for at least 500 ha of model sites and begin implementation.	Armenia, Azerbaijan, Georgia	Selected PCAs and CRs	High mountain, Fresh water
			B9.2.2. Develop and start to implement a strategy for transforming all vulnerable forest plantations into forest stands that are resilient to climate using the experience gained from the model sites. .	Interested countries	Selected PCAs and CRs	High mountain, Fresh water
			B9.2.3. Support to rehabilitation /creation of model forest nurseries for species that are resilient to climate change using the international best practices.	Interested countries	Selected PCAs and CRs	High mountain

TABLE C. PLAN FOR THE CONSERVATION AND SUSTAINABLE USE OF FRESHWATER ECOSYSTEMS

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
Conservation						
C1. Representative freshwater habitats and associated biodiversity in the South Caucasus effectively preserved in a network of PAs and linking corridors.	C1.1. 25,000 ha of new PAs are created. Management of at least 100,000 ha of existing protected areas is improved.	Target 11	C1.1.1. Increase management effectiveness of Sevan National Park and ensure conservation of endemic fish species.	Armenia	PCA 50	Forest High mountain
			C1.1.2. Support implementation of the management plan for Lake Arpi National Park.	Armenia	PCA 51	High mountain
			C1.1.3. Consolidate Protected Areas around Mingechevir reservoir (Akhar-Bakhar section of Illisu reserve, Gakh Sanctuary, Korchai state reserve and Samukh game reserve).	Azerbaijan	PCA 33	
			C1.1.4. Develop management and nature-based tourism plans for Ag-Gel National Park.	Azerbaijan	PCA 36	
			C1.1.5. Establish at least one Sanctuary to protect bird nesting areas in the Kura River valley.	Azerbaijan	PCA 30, 34, 36	
			C1.1.6. Develop the Ktsia-Tabatskuri Sanctuary.	Georgia	PCA 27	High mountain
C2. All freshwater habitats of international importance (Ramsar sites and Important Bird Areas - IBAs) are granted protection.	C2.1. About 12 new sites in the Ecoregion are approved under the Ramsar Convention as Wetlands of International Importance.	Target 11	C2.1.1. Inventory important freshwater habitats and prepare recommendations for Ramsar sites in the countries of Ecoregion.	Armenia, Azerbaijan, Georgia, Iran	All relevant PCAs and CRs	Forest, High mountain, Coastal

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
			C2.1.2. Prepare documentation to nominate at least two sites in each country, obtain Ramsar status and begin to elaborate management plans for approved sites.	Country based	All relevant PCAs and CRs	Forest, High mountain, Coastal
	C2.2. One-third of freshwater IBAs are legally protected.	Target 11	C2.2.1. Complete IBA identification and delineation and prepare and publish national IBA inventories.	Country based (where not yet done)	All relevant PCAs and CRs	Forest, High mountain, Coastal
			C2.2.2. Continue designation of IBAs as protected areas.	Ecoregion	All relevant PCAs and CRs	Forest, High mountain, Coastal
			C3.1.1. Establish transboundary cooperation between Lake Arpi and Javakheti national parks.	Armenia, Georgia	PCA 51	High mountain
C3. Transboundary cooperation leads to effective conservation of shared freshwater habitats.	C3.1. At least two transboundary initiatives for conservation of freshwater habitats are in place.	Target 11	C3.1.2. Develop and begin implementation of transboundary programme to conserve Aktas (Kartsakhi) Lake.	Turkey, Georgia	PCA 51	High mountain
			C.3.1.3. Develop and begin implementation of programme for collaborative management of transboundary rivers between Georgia and Azerbaijan. Kura, Alazani, Iori.	Azerbaijan, Georgia	PCA 22, 23, 28	Forest
			C.3.1.4. Develop and begin implementation of transboundary program for collaborative management of Astara River.	Azerbaijan. Iran		

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
			Management			
C4. Rivers and/or lake catchment areas in the Ecoregion are protected and managed sustainably taking into account the impacts of climate change.	C4.1. All countries of the Ecoregion have adopted policies and strategies for integrated water resources management.	Target 2	C4.1.1. Adopt policies and implementation strategies for integrated water resource management, including IRBM, that take account of the impacts of climate change.	Country based	All relevant PCAs and CRs	All PBs
	C4.2. Pilot projects on Integrated River Basin Management are in place in at least three countries of the region.		C4.2.1. Elaborate and begin implementation of pilot projects on sustainable watershed management in Armenia.	Armenia	PCA 48, 50, 51, 52	
			Restoration			
C5. Impacts to freshwater systems from development projects in PCA and CR are minimized.	C5.1. Model agricultural /energy enterprises, industries, and development companies adopt measures for sustainable water use and minimizing impacts on freshwater systems.	Target 2	C5.1.1. Elaborate methodological guidelines for planners of hydrotechnical infrastructure, keeping in mind to minimize the consequences.	Country based	All relevant PCAs and CRs	Forest
C6. Initiatives for restoring degraded freshwater habitats are in place in the Ecoregion.	C6.1. At least three projects are underway to restore freshwater habitats in Ecoregion.	Target 14	C6.1.1. Elaborate restoration programme for Adjikabul and Ghyrmyzy Lakes and begin to carry out restoration measures.	Azerbaijan	PCA 36	
			C6.1.2. Carry out wetlands restoration activities during the process of creating the Gyzylagaj National Park and/or improve existing PAs..	Azerbaijan	PCA 35	Coastal
			C6.1.3. Elaborate restoration programme and begin to carry out restoration measures of the Khanchali Lake ecosystem.	Georgia	PCA 51	High mountain
			C6.1.4. Begin implementation of plan of restoration for lake Jilli.	Armenia		

TABLE D. PLAN FOR THE CONSERVATION AND SUSTAINABLE USE OF COASTAL AND MARINE ECOSYSTEMS

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
Conservation and Management						
D1. Representative coastal and marine habitats of the Caspian Sea and associated biodiversity are effectively preserved in a network of PAs and linking corridors.	D1.1. At least 50,000 ha of new protected areas are created in the Caspian Sea basin. Management of at least 80,000 ha of existing reserves are strengthened.	Target 11	D1.1.1. Create the Samur-Yalama National Park.	Azerbaijan	PCA 19	Forest Freshwater
			D1.1.2. Establish PAs in the Kura River Delta and on islands in the Baku estuary and Absheron archipelagos.	Azerbaijan	PCA 32, 33	Freshwater
			D1.1.3. Establish PAs and in the Aghzibir Lake (Devechi Liman) and on Yashma Island.	Azerbaijan	PCA 20	Freshwater
			D1.1.4. Improve protection of wetlands and coastal habitats in Gyzylaghaj PA.	Azerbaijan	PCA 35	Freshwater
			D1.1.5. Improve management of Absheron National Park and develop infrastructure for nature-based sustainable tourism.	Azerbaijan	PCA 32	Freshwater
			D1.1.6. Strengthen the existing Bojagh Marine National Park, Amirekelayeh Wetland Protected Area and Anzali Wetland Protected Area.	Iran	PCA 56	Freshwater
			D1.1.7. Extend the territory of the Dagestansky Nature Reserve by adding a marine section and Tuleni Island.	Russia	PCA 9	

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
	D1.2. At least one transboundary protected area is created to preserve shared marine habitats of the Caspian Sea.	Target 11	D1.2.1. Initiate transboundary cooperation in the Samur area.	Azerbaijan Russia	PCA 19	Forest
D2. Representative coastal and marine habitats of the Azov-Black Sea and associated biodiversity are effectively preserved in a network of PAs and linking corridors.	D2.1. New protected areas are created in the Azov-Black seas on 30,000 ha and existing reserves are strengthened on at least 15,000 ha.	Target 11	D2.2.1. Strengthen management of Kolkheti National Park's marine section.	Georgia	PCA 26 CR 1	Freshwater, Forest
Restoration						
D3. Initiatives for restoring degraded coastal or marine habitats are ongoing in PCA and CR.	D3.1. At least three projects are underway to restore marine and coastal habitats along the Caspian Sea.	Targets 6, 14	D3.1.1. Elaborate strategy and begin measures to restore coastal ecosystems in Aghzibir Lake (Devechi Liman).	Azerbaijan	PCA 20 CR 31, 46	Freshwater
			D3.1.2. Restore natural migration routes of sturgeon in the mouth of Kura River.	Azerbaijan	PCA 33 CR 52	Freshwater
	D3.2. At least one project is underway to restore marine and coastal habitats along the Black Sea.	Targets 6, 14	D3.2.1. Protect priority areas for restoring migration ways of key species in the Black Sea coastal area of Georgia.	Georgia	PCA 26 CR 15	Freshwater

TABLE E. PLAN FOR THE CONSERVATION AND SUSTAINABLE USE OF HIGH MOUNTAIN ECOSYSTEMS

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
Conservation						
E1. Representative high mountain habitats and associated biodiversity of the Greater Caucasus Range are effectively preserved in a network of PAs and linking corridors.	E1.1. Improve management of 54,000 ha PA.	Target 11	E1.1.1. Upgrade Tlyaratinsky Sanctuary status to strict nature reserve.	Russia	PCA 14	Forest
			E1.1.2. Create additional PAs and connecting corridors in high mountain habitats as outlined by the Econet Plan.	Azerbaijan, Georgia, Russia	PCA 14, 12, 15 CR 10, 13, 23, 25, 30	Forest
E2. Representative high mountain habitats and associated biodiversity of the Lesser Caucasus and South Caucasus Highlands are effectively preserved in a network of PAs and linking corridors.	E2.1. At least 30,000 ha of new PAs are created in high mountain habitats. Management of at least 50,000 ha of existing reserves is strengthened.	Target 11	E2.1.1. Create Gnishik Protected Area in Central Armenia.	Armenia	PCA 46	Forest
			E2.1.2. Plan Djermuk National Park on the basis of existing sanctuaries.	Armenia	CR 41	
			E2.1.3. Improve management of Sevlich Sanctuary and carry out needs assessment to provide core support.	Armenia	PCA 46	
			E2.1.4. Create a corridor between the Khosrov reserve and Zangezur ranges in southern Armenia to allow animal migrations.	Armenia	CR 40, 41	Forest
			E2.1.5. Improve management and develop infrastructure of Zangezur National Park.	Azerbaijan	PCA 43 PCA 45	
			E2.1.6. Involve the local community in the management, monitoring, and protection of Marakan Nature Reserve.	Iran	PCA 41	
			E2.1.7. Create a mountainous PA between Dizmar and Kantal as a corridor.	Iran	PCA 44, 40	Forest
			E2.1.8. Assess the possibility of creating new PAs and corridors.	Iran	PCA 41, 47, 48	

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
	E2.2. Transboundary initiatives for conservation of high mountain ecosystems in the Lesser Caucasus-Southern highlands are in place.	Target 11	E2.2.1. Establish transboundary cooperation between Protected Areas across the Armenia-Georgia border.	Armenia, Georgia	PCA 51	Freshwater
			E2.2.2. Develop bilateral cooperation between protected areas of Turkey and Georgia in the Karcal Mountains.	Georgia Turkey	PCA 54	
Management						
E3. Sustainable pastureland management is practiced in high mountain habitats and conservation of biodiversity is taken into account.	E3.1. Sustainable grazing practices are used on at least 500,000 ha of high mountain pasturelands.	Target 14	E3.1.1. Elaborate and adopt guidelines for sustainable range management.	Country based and other interested countries	All relevant PCAs and CRs	Forest, High mountain, Freshwater
			E3.1.2. Launch three model projects on sustainable pastureland management.	Armenia, Azerbaijan, Georgia	Selected PCAs	
			E3.1.3. Launch two model projects in the Sabalan and Marakan-Kiamaki PCA using traditional approaches.	Iran	PCA 40, 41	
			E3.1.4. Launch model project for demonstrating sustainable range management in Turkey (in progress).	Turkey	PCA 48, 54	Forest
E4. Medicinal and other economically important wild plants occupy a stable place in markets in the Ecoregion, having been harvested sustainably in high mountain areas.	E4.1. Successful models for sustainable collection of useful plants are in place in at least 4 sites.	Target 18	**E4.1.1. Launch model project on sustainable collection of high mountain plants in the Sabalan PCA with specific attention to climate change and land degradation.**	Iran	PCA 40	Forest
			E4.1.2. Launch model project on sustainable collection of high mountain plants in the Dogu Karadeniz Mountains.	Turkey	PCA 54	Forest

TABLE F. PLAN FOR CONSERVING PRIORITY SPECIES

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
Ecoregional framework for conservation of priority species						
F1. Populations of all priority species are increased and/or stabilized.	F1.1. Regional working groups on priority species are functioning and connected to relevant working groups under the IUCN/SSC.	Target 12	F1.1.1. Establish regional Mammal Working Group and clarify priority species.	Ecoregion	All PCAs and CRs	All biomes
			F1.1.2. Establish regional Bird Working Group and clarify priority species.	Ecoregion	All PCAs and CRs	All biomes
			F1.1.3. Establish regional Amphibian and Reptile Working Group and clarify priority species.	Ecoregion	All PCAs and CRs	All biomes
			F1.1.4. Establish regional Fish Working Group and clarify priority species.	Ecoregion	All PCAs and CRs	All biomes
			F1.1.5. Establish regional Invertebrates Working Group and identify priority species.	Ecoregion	All PCAs and CRs	All biomes
			F1.1.6. Establish regional Plant Working Group and identify priority species and invasive species to be controlled.	Ecoregion	All PCAs and CRs	All biomes
			F1.1.7. Support seminars for working groups on conservation of priority species and ensure expert input from the IUCN/SSC.	Ecoregion	All PCAs and CRs	All biomes

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
Leopard						
F2. An effectively managed leopard conservation landscape consisting of PAs and connecting corridors is established and the leopard population increases by 50 percent.	F2.1. Regional Strategy for Leopard Conservation in the Caucasus is implemented.	Target 12	F2.1.1. Implement approved National Action Plans for leopard conservation based on Regional Strategy.	Armenia, Azerbaijan. Georgia	Relevant PCAs and CRs	Forest High mountain
			F2.1.2. Develop, approve and begin implementation of National Action Plans for leopard conservation based on Regional Strategy.	Turkey, Iran	Relevant PCAs and CRs	Forest High mountain
			F2.1.3. Implement National Action Plan for leopard conservation and reintroduction.	Russia	Relevant PCAs and CRs	Forest High mountain
Other Priority Carnivores						
F3. Striped hyena population reaches viable numbers.	F3.1. Decline of hyena population is halted.	Target 12	F3.1.1. Assess state of hyena population.	Country based	PCA 22, 31, 33, 35, 37, 38, 40, 41 42, 43, 44, 46, 47, 48 49, 52 CR 16, 17 38, 39, 40, 41, 43, 45, 47, 49, 50, 51 53, 54	All relevant biomes
			F3.1.2. Elaborate and begin implementation of regional strategy for hyena conservation, taking into account habitat modification due to climate change trends for each country.	Ecoregion	The same PCAs and CRs	All relevant biomes
			F3.1.3. Develop and begin implementation of National Action Plans on hyena conservation in each country based on regional strategy.	Country based	All relevant PCAs and CRs	All relevant biomes

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
F4. Endangered species programmes are in place and work toward increasing populations of priority species (bear, lynx) or national priority carnivore species.	F4.1. NGOs, PA administrations, and other organizations carry out successful programmes on protection of carnivore populations.	Target 12	F4.1.1. Develop status reports on priority species (bear, lynx) or national priority carnivore species.	Country based	All relevant PCAs and CRs	All relevant biomes
			F4.1.2. Develop National Action Plans and begin their implementation.	Country based	Selected PCAs and CRs	All relevant biomes
Large Herbivores						
F5. Improve management of West and East Caucasian tur populations and increase numbers by at least 20 percent.	F5.1. Protected areas effectively preserve turs throughout the animals' range.	Targets 11, 12	F5.1.1. Approve and begin implementation of National Action Plans for Tur conservation.	Azerbaijan Georgia Russia	PCA 11, 12, 13, 14, 15, 16, 17, 18, 21 CR 9, 10, 11, 13, 23, 25, 29, 30	Forest, High mountain
F6. Bezoar goat numbers increase over an expanded range by at least 20 percent, including in PAs.	F6.1. Decline of bezoar goat population is halted.	Target 12	F6.1.1. Approve and begin implementation of National Action Plans for bezoar goat conservation.	Armenia, Azerbaijan, Russia	All relevant PCAs and CRs	Forest, High mountain
			F6.1.2. Develop and begin implementation of National Action Plans for bezoar goat conservation.	Iran, Turkey	All relevant PCAs and CRs	Forest, High mountain
			F6.1.3. Develop programme of bezoar goat reintroduction in Borjomi-Kharagauli National Park and agree with countries of source populations (Armenia, Turkey).	Georgia Armenia, Turkey	PCA 27	Forest, High mountain
F7. Sustainable management practices for Caucasian red deer are in place in the North Caucasus and the population in the South Caucasus increased by 50 %.	F7.1. Long-term strategy for red deer conservation is developed taking account of climate change trends and implementation has begun. F7.1. Long-term strategy for red deer conservation is developed taking account of climate change trends and implementation has begun.	Target 12	F7.1.1. Survey red deer populations in each country and assess threats.	Country based	PCA 11, 12, 16, 17, 21, 27, 28, 29, 39, 50, 54 CR 9, 29, 58, 59	Forest, High mountain

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
			F7.1.2. Develop and begin implementation of regional strategy and coordination mechanisms for red deer conservation, taking into account habitat modification due to climate change trends for each country.	Ecoregion	The same PCAs and CRs	Forest, High mountain
	F7.2. Programme for reintroduction of red deer in the wild in its former range is launched.	Target 12	F7.2.1. Elaborate and begin implementation of programme for reintroduction of red deer in Hirkan National Park.	Azerbaijan	PCA 37	Forest, High mountain
			F7.2.2. Elaborate and begin implementation of programme for reintroduction of red deer in PAs of Armenia and agree with countries of source populations (Georgia, Russia)	Armenia	PCA 50	Forest, High mountain
			F7.2.3. Elaborate and begin implementation of programme for reintroduction of red deer in Fandoghlou (Ardebil) and Arasbaran Protected Area.	Iran	PCA 44, 37	Forest
			F7.2.4. Develop captive breeding programmes and create reproductive herds in breeding centres.	Azerbaijan Georgia, Russia, Armenia	Relevant PCAs	Forest, High mountain
F8. Chamois population is increased by 20 percent.	F8.1. Decline of chamois populations is halted.	Target 12	F8.1.1. Assess chamois populations and elaborate a unified strategy and urgent measures for its sustainable management.	Azerbaijan, Georgia, Russia, Turkey	PCA 11, 12, 13, 14, 15, 16, 17, 18, 21, 27, 52, 53, 54 CR 9, 10, 11, 12, 13, 16, 17, 22, 23, 25, 29, 30	High mountain

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
F9. The goitred gazelle is restored to protected areas in its former range and the population increased by 50%.	F9.1. Programme for restoring gazelle to PAs in its former range is being implemented.	Targets 11, 12	F9.1.1. Develop necessary infrastructure and start reintroduction in already identified PAs.	Azerbaijan, Georgia	PCA 22, 31, 33 CR 45, 47	
			F9.1.2. Establish new or enlarge existing PAs for further reintroduction of gazelles.	Azerbaijan	All relevant PCAs and CRs	
			F9.1.3. Consolidate Protected Areas around Mingechevir reservoir (Akhar-Bakhar section of Illisu reserve, Gakh Sanctuary, Korchai state reserve and Samukh game reserve).	Azerbaijan	PCA 33	forest
			F9.1.4. Develop programme of reintroducing gazelles in Vashlovani National Park.	Georgia, Turkey, other interested countries	PCA 22	
			F9.1.5. Develop gazelles reintroduction programme in Moghan Plain, Parsabad.	Iran	PCA 38	
F10. Population of Gmelin's mouflon is increased by at least 20 percent.	F10.1. A long-term strategy for mouflon conservation is adopted taking into account climate change trends and its implementation has started.	Target 12	F10.1.1. Assess current population and distribution.	Iran, Turkey	All relevant PCA and CR	High mountain
			F10.1.2. Elaborate strategy and action plans for mouflon for each country taking into account habitat modification due to climate change trends and implement urgent measures.	Iran, Turkey	All relevant PCAs and CRs	High mountain

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
			F10.1.3. Approve and implement National Action Plans for mouflon conservation.	Armenia, Azerbaijan	All relevant PCAs and CRs	High mountain
F11. A healthy population of European bison is managed sustainably.	F11.1. European bison are effectively conserved in PAs.	Target 12	F11.1.1. Increase protection measures of bison in the wild by providing support to PAs where the animals are found.	Russia	PCA 11, 12, 14	Forest
			F11.1.2. Work with local communities to provide incentives for conserving bison.	Russia	PCA 11, 12, 14	Forest
			F11.1.3. Support research and monitoring of bison in Kavkazsky and Teberdinsky strict nature reserves and North Ossetia Nature Reserve.	Russia	PCA 11, 12, 14	Forest
			Birds			
F12. Critical habitats of Caucasian black grouse are protected and the species' long-term persistence is ensured.	F12.1. The most important sites are identified and their protection is ensured.	Target 12	F12.1.1. Support research and monitoring of Caucasian black grouse and implement additional measures if necessary.	Country based	All related PCAs and CRs	High mountain
			F12.1.2 Develop implementation of National Action Plan for Caucasian black grouse.	Iran	All related PCAs and CRs	High mountain

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
F13. The population of the imperial eagle in the Caucasus is stabilized.	F13.1. New potential nesting sites are identified and artificial nests are built.	Target 12	F13.1.1. Identify new potential nesting sites based on species distribution and occurrence research.	Country based	All related PCAs and CRs	High mountain
			F13.1.2. Build artificial nests at appropriate locations.	**Country based**	**All related PCAs and CRs**	**High mountain**
F14. The populations of vulture (especially globally threatened species) stabilized.	F14.1. All nesting sites of vultures (especially globally threatened species) are identified and granted protection.	Target 11, 12	F14.1.1. Complete inventory and threats assessment of vulture nesting sites in the Caucasus.	Country based	All related PCAs and CRs	High mountain
			F14.1.2. Develop measures to protect cinereous vulture and Egyptian vulture nesting sites, considering habitat modification due to climate change trends for each country.	Country based	All related PCA and CR	High mountain
			F14.1.3. Develop a monitoring plan and build capacity for its implementation.	Country based	All related PCAs and CRs	High mountain
F15. A viable breeding population of marbled duck is ensured in the Caucasus.	F15.1. All nesting sites of marbled duck are identified, management improved and/or given legal protection where possible.	Target 11, 12	F15.1.1. Carry out an inventory of marbled duck nesting sites.	Country based	All related PCAs and CRs	Freshwater
	F15.2. Quality of marbled duck breeding habitat is improved	Target 12	F15.1.2. Develop and implement habitat management measures.	Country based	All relevant PCAs and CRs	Freshwater
F16. A viable population of white-headed duck is ensured in the Caucasus.	F16.1. All important breeding and wintering sites for white-headed duck are identified and granted protection where possible.	Target 11, 12	F16.1.1. Carry out an inventory of breeding and wintering sites for white-headed duck and identify sites that require protection.	Ecoregion	All related PCAs and CRs	Freshwater

Long-Term Target by 2025	Medium-Term Target by 2020	Relevance to CBD Strategic Plan for Biodiversity 2011-2020	Actions by 2015	Country	Priority Conservation Area (PCA)/ Corridor (CR)	Cross-reference to priority biomes (PB)
			Birds			
F12. Critical habitats of Caucasian black grouse are protected and the species' long-term persistence is ensured.	F12.1. The most important sites are identified and their protection is ensured.	Target 12	F16.1.2. Give protection to important sites.	Ecoregion	All related PCAs and CRs	Freshwater
			Amphibians and Reptiles			
F17. Over 50 locations of IUCN Red listed amphibians are legally protected throughout the entire range and connected by corridors.	F17.1. The exact area of distribution of IUCN Red Listed amphibians known and identified locations of Caucasian salamander are legally protected in PCAs connected by corridors.	Target 11, 12	F17.1.1. Implement existing regional action plan for the conservation of the Caucasian salamander.	Ecoregion	All related PCA and CRs	Forest High Mountain
			Fish			
F18. Recovering populations of sturgeon are conserved in the Black and Caspian seas.	F18.1. Regional Strategy and National Action Plans have been elaborated and are being implemented.	Target 12	F18.1.1. Develop a regional strategy for sturgeon conservation in the Caucasus.	Ecoregion	Relevant PCAs and CRs	Marine, Freshwater
			F18.1.2. Develop national action plans for sturgeon conservation and start implementation.	Country based	Relevant PCAs and CRs	Marine, Freshwater

Annex 1. Natural Landscapes of the Caucasus Ecoregion

(By Prof. Dr. N. Beruchashvili)

I. Plain, Hill, and Foothill Landscapes

A. North Subtropical Humid

A1. Colchic lowland landscapes with swamp alder forests and sphagnum bogs, and foothill landscapes with hornbeam-oak forests alternating with beech-chestnut, oak-Zelkova and poly-dominant forests with evergreen understory

A2. Hyrcanian plain landscapes with grasslands-shrublands and Hyrcanian forests

A3. Sub-Colchic plain and hilly forest landscapes with Mediterranean elements

B. Sub-Mediterranean Semi-Humid

B1. Black Sea (transitional to Colchic) plain and foothill landscapes with Pitsunda pine, oak, and poly-dominant forests, and fragments of Mediterranean scrublands (maquis)

B2. Crimea-Novorossiysk foothill landscapes with oak, pine, and juniper forests and open woodlands alternating with beech forests and fragments of Mediterranean scrublands (maquis)

B3. South-East Caucasian Sub-Mediterranean (transitional to moderate-thermophilous semi-humid) foothill landscapes with hornbeam-oak forests and woodlands and Botriochloa steppes

C. MEDITERRANEAN

C1. Black Sea foothill landscapes with Mediterranean scrublands (maquis), alternating with beech and oak forests

D. Subtropical Semi-Arid plain

D1. East Georgian hilly and foothill landscapes with Botriochloa and Stipa steppes, dry shrublands (shibliak), dwarf shrub (phrygana) vegetation, and semi-deserts

E. Subtropical Arid plain and hills

E1. East Caucasian North subtropical lowland and foothill landscapes with Artemisia, halophytic deserts and semi-deserts

F. Thermo-Moderate Semi-Humid plain

F1. East Transcaucasian plain landscapes with oak and oak-Zelkova forests

F2. Kuban hilly and plain landscapes with oak forests and forest-steppes

G. Temperate Semi-humid and Semi-arid plain

G1. North Caucasian lowland and hilly plain landscapes with mixed herb-grass steppes and semi-humid meadow-steppes

H. Temperate Semi-arid plain

H1. North Caucasian hilly and plain landscapes with steppes and meadow-steppes

H2. East European hilly and plain landscapes with steppes

I. Temperate Arid plain

I1. North Caspian lowlands with Artemisia, Salsola, and halophytic deserts and semi-deserts

J. Hydromorphic and Sub-Hydromorphic

J1. Lowlands with wetlands

J2. Delta and floodplain landscapes with wetlands, swamp forests and grasslands, and salt marshes

II. MOUNTAINOUS LANDSCAPES

K. North Sub-Mediterranean semi-humid

K1. Crimea-Novorossiysk (transitional to Colchic and moderate thermophilous) low-mountain landscapes with oak and pine forests and juniper open woodlands

L. Mediterranean

L1. Black Sea low-mountain and plain landscapes with Mediterranean scrublands (Maquis and pseudo-maquis), oak and pine forests and open semi-shrub evergreen vegetation, dry scrublands, and dwarf shrub vegetation

M. Subtropical Semi-Arid Mountain

M1. Southeast Caucasian low-mountain landscapes with juniper woodlands, dry shrublands (shibliak), and dwarf shrub vegetation (phrygana)

N. Subtropical Arid Mountain

N1. East Caucasus low-mountain landscapes with semi-deserts and deserts

O. Thermo-Moderate Humid Mountain

O1. Colchic low-mountain landscapes with hornbeam-oak and hornbeam-beech-chestnut forests mainly with evergreen understory, partly alternating with oak-pine forests

O2. Colchic middle-mountain landscapes with beech forests mainly with evergreen understory

O3. Hyrcanian low-mountain landscapes with chestnutleaf oak, oak-Parrotia and hornbeam-oak forests

O4. Hyrcanian middle-mountain landscapes with beech and oak forests

O5. East Georgian low-mountain landscapes with hornbeam-oak partly alternating with chestnut forests

O6. Southeast Caucasian (transitional to semi-humid) low-mountain landscapes with hornbeam-oak, oak forests, and secondary dry scrublands

O7. Southeast Caucasian middle-mountain landscapes with beech forests alternating with hornbeam-oak, partly with pine forests and secondary grasslands

O8. Black Sea mountain landscapes with beech and oak forests partly with evergreen understory and Mediterranean elements

P. Thermo-Moderate Semi-Humid

P1. Black Sea low- and middle-mountain landscapes with oak forests, partly in combination with dry shrublands and Mediterranean elements

P2. Middle- and upper-mountain landscapes with pine forests and secondary meadows of the Southern Uplands

P3. Alborzian middle- and upper-mountain landscapes with pine and oak forests and secondary meadows, partly with dry scrublands

Q. Thermo-Moderate Semi-Arid

Q1. Middle-mountain and upland/plateau landscapes with steppes, dry shrublands, and dwarf shrub (phrygana) vegetation of the Southern Uplands

Q2. Black Sea middle-mountain landscapes with steppes, dry shrublands, and dwarf shrub (phrygana) vegetation

Q3. Iranian middle-mountain and upland/plateau landscapes with steppes, dry shrublands, and dwarf shrub (phrygana) vegetation, partly alternating with stony deserts

R. Thermo-Moderate-Arid

R1. Middle-mountain landscapes with desert and semi-desert elements of the Southern Uplands

S. Temperate Humid Mountain

S1. North Caucasian low-mountain landscapes with oak and hornbeam-beech forests

S2. North Caucasian middle-mountain landscapes with beech, partly beech-hornbeam and hornbeam-oak forests

T. Temperate Semi-Humid Mountain

T1. South Caucasian middle-mountain landscapes with meadows, meadows-steppes, and steppes, dry shrublands and dwarf shrub vegetation

T2. North Caucasus transitional to thermo-temperate oak forests, meadow steppes, steppes, shibliak and phrygana

T3. North Caucasus low-mountain forests, shrublands, meadows, and steppes

T4. North Caucasus middle-mountain meadows, steppes, meadow-steppes, shibliak, and phrygana

T5. Middle- and upper-mountain steppes, meadow-steppes of the Southern Uplands, partly in combination with pine forests

T6. Iranian plateau and upper-mountain steppes, meadow-steppes, in combination with dry shrublands and phrygana

U. Temperate Semi-Arid Mountain

U1. South Caucasian (transitional to moderate-thermophilous) middle-mountain landscapes with steppes, dry shrublands, and dwarf shrub vegetation, partly with mountain semi-deserts

U2. Steppes, meadow-steppes, and dry shrublands of the Southern Uplands in combination with wetlands

U3. Steppes, and meadow-steppes of the Southern Uplands, transitional to high mountains meadows

U4. Volcanic plateau with steppes and meadow-steppes of the Southern Uplands

U5. North Caucasian mountain-depression landscapes with steppes, dry shrublands, and dwarf shrub vegetation

U6. Middle- and upper-mountain landscapes with steppes of the Southern Uplands

U7. Iranian upper- and middle-mountain plateau with steppes and semi-deserts.

V. Temperate Arid Mountain

V1. Low-mountain landscapes of the Southern Uplands with semi-deserts, dwarf shrub vegetation, partly with shrublands

V2. Mountain flat landscapes with stony deserts, semi-deserts, and dwarf shrub vegetation

W. Cold-Moderate Mountain

W1. Caucasian middle-mountain landscapes with beech-dark coniferous and dark coniferous (spruce-fir) forests, partly with evergreen understory

W2. Caucasian upper-mountain landscapes with birch and pine forests

W3. Upper-mountain landscapes with pine forests, meadows-steppes of the Southern Uplands, partly with arid vegetation

W4. Iranian upper-mountain landscapes with pine and oak forests, meadows-steppes and with arid vegetation

X. High-Mountain Meadow

X1. Caucasian sub-alpine landscapes with combination of meadows, tall-herb communities, elfin woods and thickets

X2. High-mountain landscapes of the Southern Uplands with meadows-steppes and fragments of sub-alpine meadows

X3. Caucasian alpine landscapes with grasslands and thickets

X4. High-mountain (sub-nival) landscapes with plant micro-communities, mosses, and lichens

Y. Glacial-Nival

Annex 2. Priority Conservation Areas and Corridors in the Caucasus Ecoregion

Priority Conservation Areas

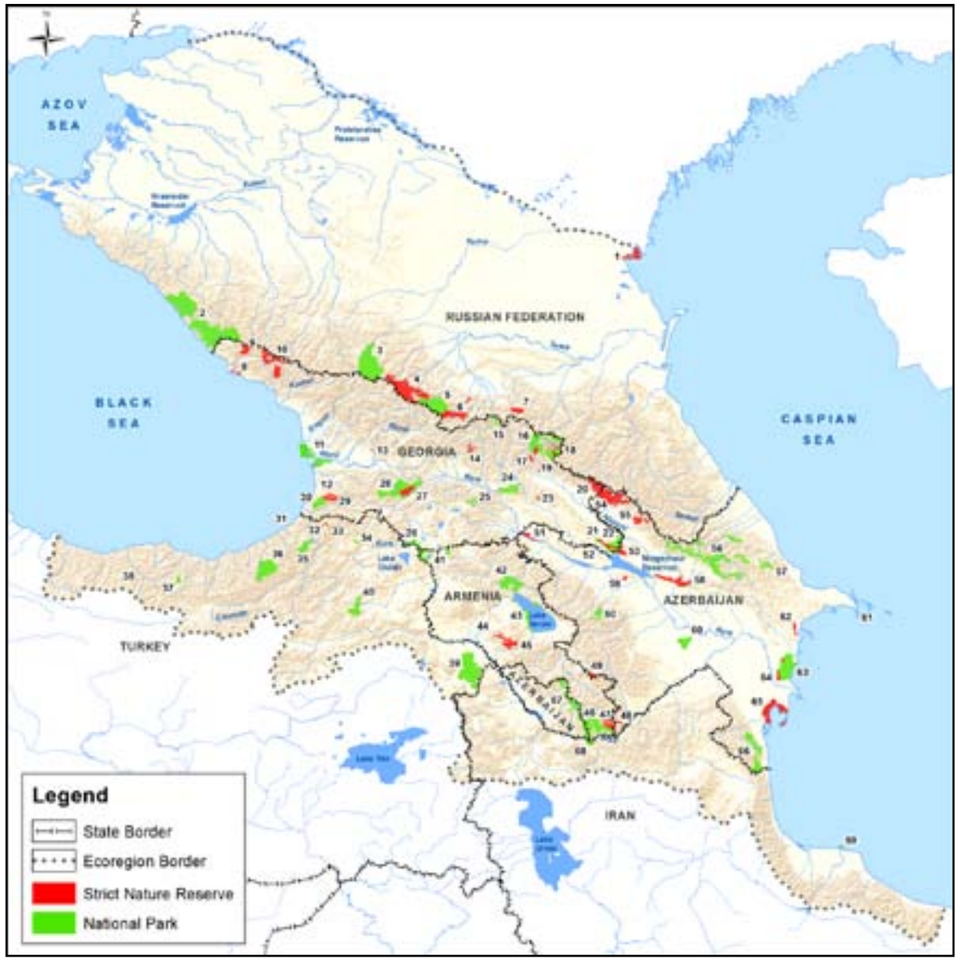
1 Abrau-Duyrso
2 Kuban
3 Primorsko-Akhtarsk
4 Yeysk
5 Don Delta
6 Veselovskoye Reservoir
7 Manych-Gudilo
8 Dadynskoye Lake
9 Kizlyarsky Bay
10 Agrakhansky Bay
11 West Greater Caucasus
12 Teberdinsky Strict Nature Reserve

13 Svaneti
14 Racha-Central Caucasus
15 Khevi-Tusheti
16 Lagodekhi-Zagatala-West Dagestan
17 Sarybash
18 Laman-Kam Area
19 Samur-Yalama
20 Aghzibir (Akzybir) Lake
21 Ismailly-Shahdagh
22 Iori-Mingechevir (Mingechaur)
23 Alazani-Ganykh
24 Kvernaki
25 Askhi-Karst Massif
26 Rioni
27 Trialeti
28 Kura-Jandari
29 Mount Gyamysh
30 Varvara-Barda
31 Gobustan-Hajigabul
32 Gobustan-Absheron
33 Shirvan
34 Makhmud Chala
35 Gyzyl-Agach (Gyzylaghaj)
36 Kura- Aras Valley
37 Talish-Zuvand
38 Aras Valley
39 Gilan
40 Sabalan
41 Marakan-Kiamaki
42 Meghri
43 Zangezur
44 Arasbaran
45 Bichanek
46 Noravank
47 Maku & Western Iranian Border
48 South Caucasus Mountains & Wetlands
49 Khosrov
50 Pambak-Sevan
51 Javakheti
52 Igdir Plain & Armavir
53 Sarikamis Forest
54 West Lesser Caucasus
55 Manglisi
56 Sefid Rud-Anzali

Corridors

1 Kuban – Rioni Corridor
2 Priomorsko-Akhtarsk – Kuban Corridor
3 Yeysk – Primorsko-Akhtarsk Corridor
4 Don Delta – Yeysk Corridor
5 Don Delta – Veselovskoye Reservoir Corridor
6 Veselovskoye Reservoir – Manych-Gudilo Corridor
7 Manych-Gudilo – Dadynskoye Lake Corridor
8 Kizlyarsky Bay – Argakhansky Bay Corridor
9 West Greater Caucasus – Teberdinsky Strict Nature Reserve
10 Teberdinsky Strict Nature Reserve – Svaneti Corridor
11 Svaneti – Racha-Central Caucasus Corridor
12 Svaneti – Askhi-Karst Massif Corridor
13 Racha-Central Caucasus – Khevi-Tusheti Corridor
14 Racha-Central Caucasus –Trialeti Corridor
15 Rioni – West Lesser Caucasus Corridor
16 Trialeti – West Lesser Caucasus Corridor
17 West Lesser Caucasus – Sarikamis Forest
18 Trialeti – Manglisi Corridor
19 Trialeti – Javakheti Corridor
20 Manglisi – Pambak-Sevan Corridor
21 Javakheti – Igdir Plain and Armavir Corridor
22 Sarikamis Forest – Igdir Plain and Armavir Corridor
23 Khevi-Tusheti – Lagodekhi-Zakatala Corridor
24 Argakhansky Bay – Samur-Yalama Corridor
25 Lagodekhi-Zagatala – Laman-Kam Area Corridor
26 Lagodekhi-Zagatala – Alazani-Ganykh Corridor
27 Sarybash – Alazani-Ganykh Corridor
28 Alazani-Ganykh – Iori-Mingechevir (Mingechaur) Corridor
29 Lagodekhi-Zagatala – Sarybash – Ismailly-Shahdagh Corridor
30 Laman-Kam Area – Ismailly-Shahdagh Corridor
31 Samur-Yalama – Aghzibir (Akzybir) Lake Corridor
32 Pambak-Sevan – Mount Giamysh Corridor
33 Pambak-Sevan – Khosrov Corridor
34 Igdir Plain and Armavir – South Caucasus Mountains & Wetlands Corridor
35 Igdir Plain and Armavir – South Caucasus Mountains & Wetlands Corridor
36 Igdir Plain and Armavir – Maku and Western Iranian Border Corridor
37 South Caucasus Mountains & Wetlands – Maku and Western Iranian Border Corridor
38 Maku and Western Iranian Border – Marakan-Kiamaki Corridor
39 Noravank – Bichanek Corridor
40 Khosrov – Noravank Corridor
41 Khosrov – Bichanek Corridor
42 Bichanek – Zangezur Corridor
43 Mount Gyamysh – Meghri – Arasbaran Corridor
44 Varvara-Barda – Kura-Aras Valley Corridor
45 Iori-Mingechevir (Mingechaur) – Gobustan-Hajigabul Corridor
46 Aghzibir (Akzybir) Lake – Gobustan-Absheron Corridor
47 Gobustan-Hajigabul – Shirvan Corridor
48 Gobustan-Absheron – Shirvan Corridor
49 Kura- Aras Valley – Makhmud Chala Corridor
50 Kura- Aras Valley – Aras Valley Corridor
51 Makhmud Chala – Gyzyl-Agach (Gyzylaghaj) Corridor
52 Shirvan – Gyzyl-Agach (Gyzylaghaj) Corridor
53 Marakan-Kiamaki – Sabalan Corridor
54 Aras Valley – Sabalan Corridor
55 Gyzyl-Agach (Gyzylaghaj) – Talish-Zuvand Corridor
56 Sabalan – Talish-Zuvand Corridor
57 Talish-Zuvand Marine – Sefid Rud-Anzali Corridor
58 Talish-Zuvand – Sefid Rud-Anzali Corridor
59 Sefid Rud-Anzali – Gilan Corridor
60 Marine Sefid Rud-Anzali – Gilan Corridor

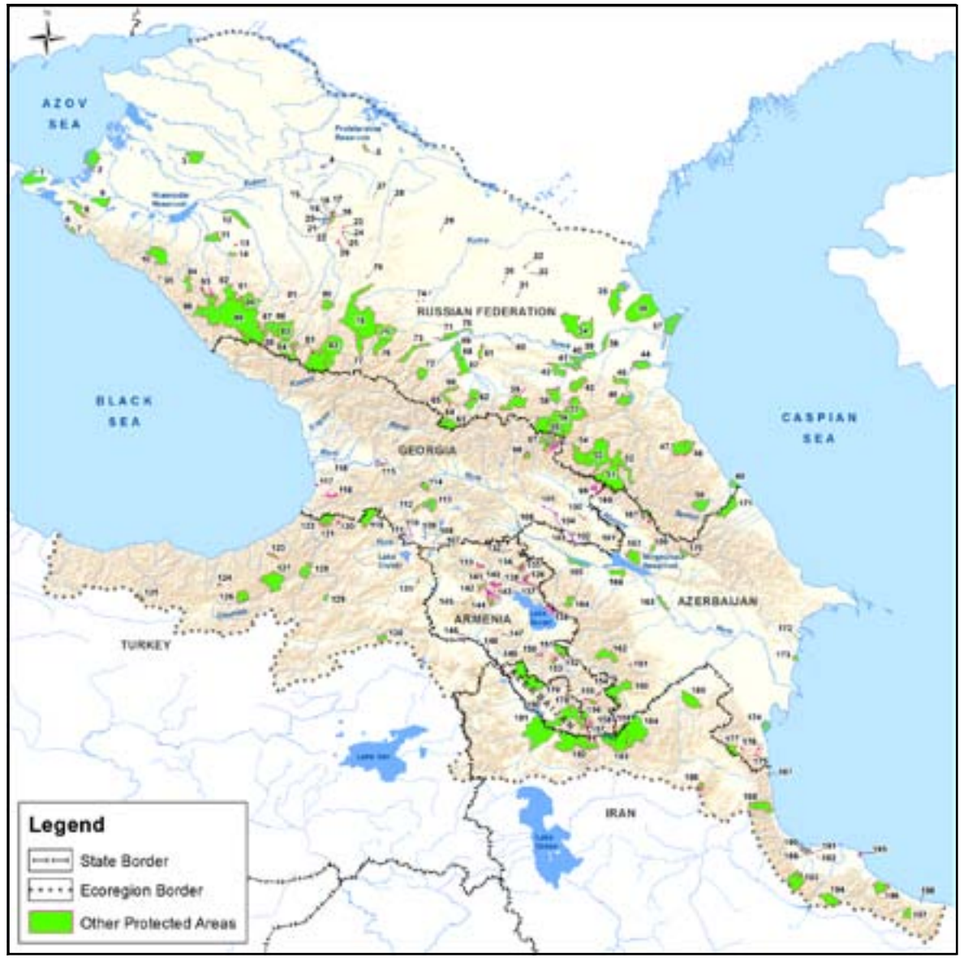
Annex 3. Protected Areas of the Caucasus Ecoregion: Strict Nature Reserves and National Parks[6]



1	Dagestansky	Strict nature reserve
2	Sochinsky	National park
3	Pryel'brusiye	National park
4	Kabardino-Balkarsky	Strict nature reserve
5	Alaniya	National park
6	Severo-Osetinsky	Strict nature reserve
7	Erzi	Strict nature reserve
8	Pitsunda-miusera	Strict nature reserve
9	Ritsa	Strict nature reserve
10	Pskhu-Gumista	Strict nature reserve
11	Kolkheti	National park
12	Kobuleti	Strict nature reserve
13	Sataplia	Strict nature reserve
14	Liakhvi	Strict nature reserve
15	Kazbegi	National park
16	Tushet	National park
17	Tusheti	Strict nature reserve
18	Batsara	Strict nature reserve
19	Babaneuri	Strict nature reserve
20	Lagodekhi	Strict nature reserve
21	Vashlovani	Strict nature reserve
22	Vashlovani	National park
23	Mariamjvari	Strict nature reserve
24	Tbilisi	National park
25	Algeti	National park
26	Javakheti	National park
27	Borjomi	Strict nature reserve
28	Borjomi-Kharagauli	National park
29	Kintrishi	Strict nature reserve
30	Mtirala	National park
31	Camburnu	Strict nature reserve
32	Camili-Gorgit	Strict nature reserve
33	Camili-Efeler	Strict nature reserve
34	Karagol Sahara	National park
35	Hatila Valley	National park
36	Kackar Mountains	National park
37	Altindere Valley	National park
38	Orumcek Forest	Strict nature reserve
39	Agri Mountain	National park
40	Sarikamis Allahuekber Mountains	National park
41	Lake Arpi	National park
42	Dilijan	National park
43	Sevan	National park
44	Erebuni	Strict nature reserve
45	Khosrov Forest	Strict nature reserve
46	Arevik	National park
47	Shikahogh	Strict nature reserve
48	Bastichay	Strict nature reserve
49	Garagiol	Strict nature reserve
50	Goygol (Gey-Gel)	National park
51	Garayazy	Strict nature reserve
52	Eldar Pine	Strict nature reserve
53	Ilisu Branch	Strict nature reserve
54	Zagatala	Strict nature reserve
55	Ilisu	Strict nature reserve
56	Shakhdagh	National park
57	Altyagaj (Altyagach)	National park
58	Turyanchay	Strict nature reserve
59	Korchay	Strict nature reserve
60	Ag-Gel	National park
61	Absheron	National park
62	Gobustan	Strict nature reserve
63	Shirvan	National park
64	Shirvan	Strict nature reserve
65	Gyzylaghaj (Gyzyl-Agach)	Strict nature reserve
66	Hirkan	National park
67	Zangezur	National park
68	Kantal	National park
69	Bojagh International Wetland	National park

6. other categories of protected areas, such as protected landscapes, sanctuaries, wildlife reserves, etc. see Annex 4.

Annex 4. Protected Areas of the Caucasus Ecoregion: Other Categories



1	Tamano-Zaporozhsky	Zoological sanctuary
2	Priazovsky	Zoological sanctuary
3	Novo-Berezansky	Zoological sanctuary
4	Solenoe Ozero	Hydrological sanctuary
5	Burukshunsky	Zoological sanctuary
6	Bol'shoy Utrish	Multi-purpose sanctuary
7	Abraussky	Landscape sanctuary
8	Krasnaya Gorka	Multi-purpose sanctuary
9	Krymsky	Sanctuary
10	Goryache-Klyuchevskoy	Zoological sanctuary
11	Belorechensky	Multi-purpose sanctuary
12	Shovgenovsky	Zoological sanctuary
13	Kuzhorsky	Zoological sanctuary
14	Maykopsky	Zoological sanctuary
15	Novotroitsky	Zoological sanctuary
16	Russky les	Multi-purpose sanctuary
17	Novomar'evskaya Polyana	Botanical sanctuary
18	Buchinskaya Polyana	Botanical sanctuary
19	Udachny	Botanical sanctuary
20	Besputskaya Polyana	Botanical sanctuary
21	Vishnevaya Polyana	Botanical sanctuary
22	Kravtsovo Ozero	Botanical sanctuary
23	Vshivoe Ozero	Hydrological sanctuary
24	Gora Budarka	Geological sanctuary
25	Urochische Budarka	Multi-purpose sanctuary
26	Saldatskaya & Malaya Polyany Gory Strizhament	Botanical sanctuary
27	Urochische Peski	Botanical sanctuary
28	Solenoe Ozero	Zoological sanctuary
29	Blagodarnensky	Botanical sanctuary
30	Irgaklinsky	Multi-purpose sanctuary
31	Stepan-Bugor	Botanical sanctuary
32	Dyuna	Multi-purpose sanctuary
33	Bazhigan	Botanical sanctuary
34	Stepnoi	Sanctuary
35	Tarumovsky	Zoological sanctuary
36	Khamamatyurtovsky	Zoological sanctuary
37	Agrakhansky	Zoological sanctuary
38	Khamamatyurtovski	Sanctuary
39	Parabochevski	Sanctuary
40	Bragunski	Sanctuary
41	Argunski	Sanctuary
42	Zelenaya zona gor/ Groznogo	Sanctuary
43	Shalinski	Sanctuary
44	Yangiyurtovsky	Zoological sanctuary
45	Andreyaulsky	Zoological sanctuary
46	Melishtinsky	Zoological sanctuary
47	Deshlagarski	Sanctuare
48	Kayakentsky	Zoological sanctuary
49	Samursky	Zoological sanctuary
50	Kasumkentsky	Zoological sanctuary
51	Tlyaratinsky	Zoological sanctuary
52	Charodinsky	Zoological sanctuary
53	Kosobsko-Kelebsky	Zoological sanctuary
54	Bezhtinsky	Zoological sanctuary
55	Veduchi	Nature park
56	Sovetsky	Sanctuary
57	Vedenski	Sanctuary
58	Urus-Martanovski	Sanctuary
59	Ingushsky	Multi-purpose sanctuary
60	Galyugayevskiy	Multi-purpose sanctuary
61	Verkhne-Kurpski	Sanctuary
62	Tseisky	Sanctuary
63	Zaramagsky	Zoological sanctuary
64	Ceysky	Multi-purpose sanctuary
65	Matsutinsky	Zoological sanctuary
66	Turmansky	Zoological sanctuary
67	Zmeysko-Nikolaevsky	Zoological sanctuary
68	Ozrekski	Sanctuary
69	Tersko-Aleksandrovski	Sanctuary

70	Ekaterinogradski	Sanctuary
71	Geduko	Sanctuary
72	Kara-su	Sanctuary
73	Chegemski	Sanctuary
74	Safonova Dacha	Botanical sanctuary
75	Nizhne-Malkinski	Sanctuary
76	Verkhne-Malkinski	Sanctuary
77	Khasautsky	Zoological sanctuary
78	Kavkazskye Mineral'nye Vody	Specially protected ecological-recreational region
79	Liman	Zoological sanctuary
80	El'burgansky	Zoological sanctuary
81	Belaya Skala	Zoological sanctuary
82	Dautsky	Zoological sanctuary
83	Teberdinsky	Biosphere reserve
84	Arkhyzsky	Zoological sanctuary
85	Chiliksky	Zoological sanctuary
86	Cheremukhovsky	Zoological sanctuary
87	Labinsky	Zoological sanctuary
88	Damkhurtssky	Zoological sanctuary
89	Kavkazsky	Biosphere reserve
90	Psebaysky	Zoological sanctuary
91	Bol'shoy Tkhach	Landscape sanctuary
92	Dakhovsky	Zoological sanctuary
93	Chernogorie	Sanctuary
94	Tuapsinsky	Multi-purpose sanctuary
95	Agriysky	Landscape sanctuary
96	Sochinsky	Zoological sanctuary
97	Tusheti	Protected Landscape
98	Ilto	Sanctuary
99	Lagodekhi	Sanctuary
100	Artsivis kheoba	Natural Monument
101	Alaznis chala	Natural Monument
102	Chachuna	Sanctuary
103	Takhti-thepha	Natural Monument
104	Iori	Sanctuary
105	Khorugi	Sanctuary
106	Gardabani	Sanctuary
107	Madatapa	Sanctuary
108	Bugdasheni	Sanctuary
109	Khanchali	Sanctuary
110	Sulda	Sanctuary (wetland)
111	Kartsakhi	Sanctuary (wetland)
112	Tetrobi	Sanctuary
113	Ktsia-Tabatskuri	Sanctuary
114	Nedzvi	Sanctuary
115	Ajameti	Sanctuary
116	Katsoburi	Sanctuary
117	Kobuleti	Sanctuary
118	Kintrishi	Protected Landscape
119	Posof	Equivalent to sanctuary
120	Savsat-Balikli & Maden	Equivalent to sanctuary
121	Camili (CAMILI)	Biosphere reserve
122	Borcka-Karagol	Nature park
123	Camlihemsin-Kackar	Equivalent to sanctuary
124	Uzungol	Equivalent to sanctuary
125	Artabel Lakes	Equivalent to sanctuary
126	Pazaryolu	Equivalent to sanctuary
127	Cat	Equivalent to sanctuary
128	Yusufeli-Coruh Valley	Equivalent to sanctuary
129	Oltu	Wild goat, Wildlife protection area
130	Sarikamis Kagizman Kuloglu	Equivalent to sanctuary
131	Kars-Kuyucuk Lake	Waterfowl, Wildlife protection area
132	Zikatar	Sanctuary
133	Gyulagarak	Sanctuary
134	Arjatkhleni Hazel-Nut	Sanctuary
135	Ijevan	Sanctuary
136	Gandzakar-Upper Aghdan	Sanctuary
137	Getik	Sanctuary
138	Akhnabat Yew Grove	Sanctuary
139	Juniper Open Woodland	Sanctuary
140	Margahovit	Sanctuary
141	Caucasian Rose-Bay	Sanctuary
142	Hanqavan Hydrological	Sanctuary
143	Bank's Pine	Sanctuary
144	Arzakan-Meghradzor	Sanctuary
145	Aragats Alpine	Sanctuary
146	Ararat Vordan Karmir	Sanctuary
147	Gilan	Sanctuary
148	Khor Virap	Sanctuary
149	Goravan Sands	Sanctuary
150	Yeghegis	Sanctuary
151	Jermuk Hydrological	Sanctuary
152	Jermuk Forest	Sanctuary
153	Herher Open Woodland	Sanctuary
154	Sev Lich	Sanctuary
155	Goris	Sanctuary
156	Zangezur	Sanctuary
157	Boghaqar	Sanctuary
158	Plane Grove	Sanctuary
159	Arazboyu	Sanctuary
160	Gubadly	Sanctuary
161	Dashalti	Sanctuary
162	Lachyn	Sanctuary
163	Barda	Sanctuary
164	Gyzylja	Sanctuary
165	Shamkir	Sanctuary
166	Korchay	Sanctuary
167	Ilisu	Sanctuary
168	Zagatala	Sanctuary
169	Sheki	Sanctuary
170	Gabala	Sanctuary
171	Gusar	Sanctuary
172	Gil Island	Sanctuary
173	Byandovan	Sanctuary
174	Lesser Gyzylaghaj (Small Gyzyl-Agach)	Sanctuary
175	Hirkan	Sanctuary
176	Rvarud	Sanctuary
177	Zuvand	Sanctuary
178	Ordubad	Sanctuary
179	Arpachay	Sanctuary
180	Arazboyu	Sanctuary
181	Marakan	Protected area
182	Kiamaky	Sanctuary
183	Dizmar	Protected area
184	Arasbaran (Biosphere reserve)	Protected area
185	Moghan	Protected area

186	**Sabalan**	**Protected area**
187	**Lavandvil**	**Sanctuary**
188	**Lisar**	**Protected area**
189	**Siyahkeshim**	**Protected area**
190	**Sorkhankol**	**Sanctuary**
191	**Selkeh**	**Sanctuary**
192	**Chukam**	**Wildlife refuge**
193	**Gashtroodkhan**	**Protected area**
194	**Siyahrode rodbar**	**Protected area**
195	**Amirkalayeh**	**Sanctuary**
196	**Sarvelat**	**Protected area**
197	**Beleskoh**	**Protected area**
198	**Koshkehdaran**	**National Monument**