Status Review of the Biodiversity Conservation in the Caucasus:

Achieving C2010 Goals,

Russian Federation

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Introduction

The **Russian section of Caucasus** (Northern Caucasus) are located in the south from the Russian Plane which is the historical and economic centre of the country. All 9 subjects of Northern Caucasus located in European Russia and include mountain areas.

The Russian Federation has no legislation or regulations which establish the criteria of the "mountain" status of a region. In several republics of the Northern Caucasus (Daghestan, North Ossetia-Alania) this term is widely used in governmental documents. However, it has no official definition, partially because of lack of elaborated basic concepts. Interpretation of this problem in the European Community is discussed in a separate chanter.

Northern Caucasus if the only region in European Russia, which fully meets the classical criteria for the mountain countries: elevations and dissection of relief, landscape, climatic, and ethnic and cultural diversity, economy and settlement system.

The region has a rectangular form stretching for more than on 1000 km in length, and for 150 km in width. According to its orographic features Northern Caucasus is divided into two zones: the mountain zone and the lowland or flatland zone. The mountain zone is formed by several ridges: Lesistyi, Pastbischnyi, Skalistyi and Bokovoy, stretching parallel to the Main Caucasian Ridge. The highest summits of the Caucasus are: Elbrus (5642 m) and Kazbek (5033 m). From south to north the above ridges transect the deeply incised river valleys fed by highland glaciers. The valleys stretch for tens of kms in the west, and for hundreds of kms and more in the central and eastern sections. Owing to favourable climatic conditions agriculture was spread in these valleys and intramontagne depressions up to of 2500 m a.s.1. since ancient times. High alpine grasslands were used as rangelands.

Foothills and lowland regions have fertile chernozems. Soft winters ensure all-year-round pasturing without significant feeding of animals in stalls.

The above combination of the environmental and climatic conditions produces the classical pattern of mountain-lowland interaction, and of economic and cultural links between the mountain people and the steppe people.

The environmental conditions of the region and its situation at the cross-roads of Europe and Asia, at the rim of steppes which for millennia were treaded by nomads moving from east to west and from north to south, have produced decisive impact on the ethnic structure of the region. The modern ethnic structure of the Northern Caucsus was formed in the end of the 1 7-th century. At present this area has more than **fifty nationalities** which speak three different language families: *Caucasian, Indo-European, and Altai*.

Russia has no other area similar to Northern Caucasus in the number of nations and ethnic groups inhabiting a rather limited territory, or the historical and cultural diversity, or a wide spectrum of environmental and climatic features, as well as in graveness and abundance of problems and conflict situations. The Caucasian influence is a persistent political, economic and cultural factor in the history of Russia. However, so far this factor has not been included into a long-term mountain development policy. The mountain areas find themselves under increased pressure of the development problems. Their environmental, resource, and ethno-cultural potential has distinct trend towards reduction and degradation.

The above territory is characterized by specific and unique environments, cultures, traditions, languages, religions and mentality of the people. This diversity is the main value of the region. However, there are certain common problems, typical for the mountain regions of all Subjects of Federation.

Social problems. One problem typical for all mountain regions is depopulation. The process of outmigration of the mountain people to foothill and lowland regions was especially heavy in the 19-th century. The reasons for that are well known: shortage of lands, inaccessibility, severe climate and risk of natural hazards. The scales and intensity of this process varied widely, however, the trend was persistent in all regions. The process of outmigration was most active in Northern Ossetia in the period of strengthening of domination of the Russian state. During several decades of the 19-th century up to 50% of population of the mountain communities migrated to plains. Similar trend was displayed in Ingushetia and in Chechnia, however, the process was more gradual there.

Outmigration of the population has produced the current situation: 32% of territory concentrate three quarters of the republic's population. The high mountain zone which accounts for one fifth of territory, has only 0.1 % of population due to the population outflow.

The above tendencies of "slipping down" of the population from mountains are typical for all mountain regions of the Caucasus. They increase polarization of the conditions of life and destabilize the socio economic situation.

The problems of unemployment and poverty are the main factors accounting for depopulation of mountains. Unemployment in the mountain region is generally rather high in this region: for example in 2003-2005 in Adygei, Daghestan, Ingushetia, Kabardino-Balkaria, Karachai-Cherkessia, North Ossetia-Alania, Krasnodar kray and Stavropol krai it was 37,2; 65,2; 97,2 (!), 50,2; 61,3; 31,3; 42,8 and 43,6 %, respectively, as compared to the Russia's average of 28,9%. In the majority of mountain regions the problem of poverty is very important. Thus, the per capita income in Ingushetia is more 3 times lower than the national average.

Ageing of the mountain population and outflow of the young because of limited employment opportunities and their lower attractiveness jeopardize the ethno-cultural values and traditions. This problem is more acute in the western and central sections of Northern Caucasus, as compared to more conservative Daghestan.

Inadequate communication infrastructure, health care and domestic services, insufficient network of schools - all these factors contribute to loss of the mountain population and, as a result, enhance socio-economic polarization and marginalization of the mountain communities.

The problem which is currently dominating the Northern Caucasus is the **war in Chechnia and the interethnic conflicts (1991-2005)**. It is also the most acute political problem in Russia, deeply rooted in the national history and unresolved so far. This problem produces a corroding effect on the whole socio economic, geopolitical and ecological situation in the region. Taking into account the complexity and the magnitude of the problem the authors of this report have only briefly mentioned this factor of destabilization.

At the same time, it should be underlined that the mountain regions need a federal policy -a Rehabilitation Program - specially tailored for Chechnya and for the whole of the conflict prone area of the Northern Caucasus (more 35%). In addition to reconstruction of housing and economy, this Program should include the concept of social, ethno-cultural and psychological rehabilitation of the ethnic communities, and of the system of interethnic and interregional relations.

Environmental problems. All mountain regions of Northern Caucasus have a common spectrum of environmental and resource problems with certain regional variations. Those problems can be unmarried as follows: soil erosion, depletion of soil productivity, digression of

upland rangelands, deterioration of the quality of haying grounds. In same regions (Northern Ossetia) a lot problems connect with mining and pollution by plumb, zinc, box-calf a.o.

One problem in this sequence which is little known even to the experts is loss of the loose cover in mountain areas, leading to irreversible degradation of the landscapes. On the northern macroslope of the Caucasus the lands, and the mountain grasslands, above all, exit the regime of natural compensation of anthropogenic disturbances. At the rates of tolerant erosion accepted in agriculture aggravated by insignificant depth of the loose cover, the latter will be lost within a few tens or hundreds of years. Over most of the rock substrata it can not be reproduced within any foreseeable future.

Large-scale degradation of the loose cover and outcropping of the rocky basements is widely observed in mountain regions of all North Caucasian Republics and administrative units. Observations of the rates of the above processes conducted in the field by researchers from the Institute of Geography of the Russian Academy of Sciences demonstrated that the mountain territories have already entered the catastrophic period. Most of the mountain rangelands may lose their fine earth over about a half of their territory within the next 100 years, and the heaviest losses will take place within the first 50 years.

The Northern Caucasus has the most valuable resources of the 21-st century: fresh waters. It has 2047 glaciers over 1424 km^2 of area storing 102 km^3 of pure water. There is risk of their pollution by the trans-boundary flows, and by local sources of pollution.

Distorted structure of protected territories: most of them are located in high mountains; their number is not sufficient in the highly developed low and middle mountains for protection of biodiversity; some categories, like hunting sanctuaries, do not meet the criteria for protection of the species diversity their environment.

Problems of management. Many of the socio-economic and environmental problems of the Northern Caucasus regions are a result of domination of the "extraction" models of developing the natural resources. Minerals and construction materials, hydropower and forest resources, lands and recreational resources - their withdrawal and/or use is being done in a non-compensated mode ignoring the interests of the mountain communities.

Several Republics of the Northern Caucasus (Daghestan, North Ossetia-Alania, Adyghe) realized regional programs for socio-economic development of the mountain regions.

The concept of the Mountain Program in Digested recognizes the fact that the mountain zone of Daghestan possesses a significant non-utilized potential. The area of the mountain zone is 2117 thous. ha (40% of the total), the population is over 500 thous. pars., it produces 37% of meet, 80% of milk, 60% of fruit.

The Program included a statement acknowledging that in the past the policy in relation to the mountain zone was fundamentally erroneous, and resulted in distorted investment-consuming economy, low level of the socio-cultural and domestic amenities, inadequate road network, decline of the traditional economy, folk crafts, terraced and mountain-to-valley agricultures apiculture and animal-breeding.

The main goals of the Program are: to create in the mountain section of the Republic a high quality economically viable human environment; to protect the environment; to convert this area into an economically prosperous part of the Daghestan Republic; to stop outmigration, abandonment of settlements.

The Mountain Program was approved by the Supreme Council of Daghestan. It included a detailed scheme of investment support, and subsidies for the agrarian sector. The financial support was expected from the Federal budget (60%), budget of the Republic (15%), resources of enterprises and farms (20%), loans from banks, taxes for road construction. In view of the fact that the budget of the Republic is for 62% supported from the Federal budget, it is clear that the

financial support of the Mountain Program was mostly expected from the Government of the Russian Federation.

The program "Mountains of Ossetia" was part of the overall socio-economic program of the Republic. It was developed in accordance with the Presidential Decree and is also financed from the Federal Budget.

The regional programs supporting the Caucasus regions makes it clear that the local Governments understand the need to develop the mountain territories and to alleviate their socio economic standards of life, however, the financial resources are predominantly provided by the Federal budget. This situation is very common, and the crisis in mountains can not be resolved without state support. The problems of biodiversity conservation occupy last places in regional priorities of development

Nature protected areas. However, this is another evidence of the need for a national policy in support of the socioeconomic development of the mountain areas in Northern Caucasus. At the same time, the role of the local authorities in long-term development planning and in management of the resources should be legislatively reinforced.

At present, there are hardly any commonly accepted standards for structuring a geographical network of protected areas at the regional level - Caucasus. More achievements have been scored in development of the scientific grounds for networking the elements of the global biospheric monitoring and biospheric reserves (Teberdinsky and Kavkazsky biospheric reserves). In particular, the biospheric reserves are associated with the foci of biodiversity, with the areas of development of the biotic types, with border areas of the biogeographical regions. Distribution of federal protected areas (reserves and national parks) and of other categories of protected areas is strongly influenced by the "administrative" and random factors. That explains for the fact that the current protected areas network in Caucasus is far from the optimal. No exception is the different regions and altitudinal belts of Northern Caucasus, including the low and middle mountains, where protected areas absent.

We believe that the systems of protected areas should take into account the following major factors:

1. Altitudinal zones of the particular mountain territory and the local attitudinal zones specific for the mountain "macroregion" (in our case of the Greater Caucasus). This approach is most efficient for defining representativeness of protected areas (of nature reserves, above all) as the etalons and reservations of the mountain biota's genetic and cenotic pools, as well as of the spatial relationships of the biotic complexes.

2. Structure of a mountain region as an integrity of watersheds of different levels. This approach is most efficient for defining borders of individual protected areas, because in mountains it is the watersheds, not the attitudinal zones, that represent the functional spatial units ("cells").

Nature reserves and other categories of protected areas were traditionally grounded in mountain regions of Caucasus on the principle of priority of the unique high-mountain ecosystems, basically alpine and subalpine. This was particularly widespread in the **Greater Caucasus** region. The above ecosystems are noted for the greatest number of the endemic flora and fauna. In addition, some of their structural and functional parameters and genetic features have no similarities with the lowland ones. For this reason most of nature reserves in the Russian section of the Greater Caucasus are located in its axial zone, i.e., in the highlands which have relatively similar environments throughout the whole Main Caucasian Ridge. It should also be noted that the principle of priority of highlands for nature conservation was not only due to the unique character of the highland ecosystems, which is indisputable, but also to the specific features and spatial organization of mountain agriculture. At the time of delineation of the nature reserves the status of "wild nature sites ", could only apply to the highland regions of the Greater Caucasus.

All territories located below were by that time heavily integrated in the economic systems and the very idea of putting these territories under the protected regime was impossible. On the other hand, the highland areas in the Russian section of Eastern Caucasus (mountains of Daghestan) are deprived of the protected status.

As a result the following pattern has developed. First, landscapes of middle mountains, low mountains and foothill attitudinal zones which are most significantly transformed by man, hardly have any protected areas ensuring an adequate level of protection. The nature sanctuaries existing there are not excluded from land use and, in effect, are only formally referred to as protected territories. Second, significant areas within individual protected areas belong to "lifeless" territories which have practically no biota and are hardly accessible (rocks, stone debris trains, glacial and nival landscapes). The landscapes which are much more valuable from the perspective of protection (mountain forests, above all) are insufficiently represented. This situation is very vivid today in the Kabardino-Balkarian nature reserve where rock debris, subnival and glacial-nival landscapes amount to almost 55% of the territory, whereas the forest landscapes account for less than 4.5%.

Another problem is delineation of protected areas. It is frequently done arbitrarily, without due reference to the natural borders. At the best, it follows the axial lines of valleys, but in most cases coincides with land holdings or administrative borders. The above situation is rather typical for the Russian section of the Greater Caucasus, for Northern Caucasus, in particular.

The protected areas borders (in highlands, above all) should follow the contours of watersheds which are the natural spatial units in mountain territories. Each watershed includes fragments of different attitudinal zones separated from the typologically similar fragments of the same zones in the adjacent valleys. Each watershed has its own complex of outside processes depending on its attitudinal situation (for example, glacial and nival processes in highlands, erosion processes in middle mountains, etc.). Monitoring of the above processes with emphasis on their interaction with biota should also become part of the protected areas activities, because successions of vegetation restored after avalanches, mudflows, landslides, etc. are another natural variant of the mountain ecosystems, equally "valuable" for biodiversity, as the typical ("climax") vertical complexes.

The major orientations of the protected areas network in the Greater Caucasus (Northern and Western) in the nearest future should be reduction of its "fragmentation", and extension of the protection regime to "low" landscapes and ecosystems along the total northern macroslope. This will increase representation of all members of the vertical zonal spectrum. This goal can be achieved either by expansion of the already existing areas, or by creation of new protected areas, of nature reserves, above all.

However, the factor of increasing political and economic independence of the regions makes it hard to expect any significant expansion of the protected areas which have no appreciable "commercial" value. In this situation the priority may be given to the national parks instead of nature reserves, because the former combine the recreational (industrial) and the nature conservation activities. There already exist the projects of the Utrish reserves on Bleak see coast, Lagonaki and Northern Caucasus parks, etc. On the other hand, even despite the increasing pressure of cultivation in the Northern Caucasus it is quite possible that new relatively small-size nature reserves be established ("microreserves"). This process does not contradict the principle of the area sufficiency: in mountains the natural abiotic and biotic processes often take place within relatively small spaces sufficient for developing integrated natural complexes which can become objects of protection.

1. Species and Monitoring

In terms of its natural conditions, settlement history and ethnic and cultural diversity, the Caucasus is distinguished by a wide range of differences caused by its geographic location and landscape diversity. All this creates wide diversity of habitats and preconditions for rich flora and fauna development. The pressure of historic and bio-geographic factors ensures a relatively high endemism among mountain plants and animals in the Caucasus. Western Caucasus biota is distinguished by particularly peculiar features.

For many thousand years mountainous regions have been subject to intensive development and transformation by different peoples. At the modern stage the majority of the Northern Caucasus mountainous ecosystems represents man-induced modification of mountainous ecosystems with a relatively rich level of biodiversity.

Due to its high productivity natural vegetation of the Caucasus mountainous regions has enormous economic value. From the ancient times mountainous ecosystems' biota has been used by people as natural fodder fields, source of food resources, construction materials, fuel, etc.

Mountainous grasslands are widely used as summer and autumn pastures for sheep, livestock and horses. Mountainous hay lands continue to be important fodder fields as well.

Under bio-geographic criteria mountains can be viewed as "islands" rising above the plains and serving as reserves of the plains' biota in times of icing and sea transgressions. The Caucasus serves as a natural line dividing not only different states, but bio-geographic regions as well.

The Central Caucasus Range represents a vital bio-geographic barrier in the way of biotic exchange. At the same time, the Caucasus serves as a peculiar corridor, several parts of which in different historic times have been used as migration routes by many groups of animals and plants for penetration of the northern forms into the south and of the southern ones into the north. All this, together with its geographic position, vast area, dominating heights, as well as paleo-geographic factors, determines a high level of species richness of the Caucasus flora and fauna and the presence of spots of biodiversity in the mountains at all levels of its manifestation, including intra-species, species, ecosystem and landscape levels.

The Caucasus flora within the limits of the Russian Federation consists of more than 6 thousand species, and only 433 of them are found at the adjacent plains at points not higher than the lower belts. It is in the mountains that the majority of endemic and relic species is concentrated.

A high biodiversity level is typical of *mountainous vegetation* of the Northern Caucasus. It is distinguished by such specific mountainous forms of vegetation communities as mountain-forest, mountain-steppe, sub-alpine, alpine and rocky ones.

The Northern Caucasus serves as a home place for *130 mammal species, 360 bird species (almost 50 per cent of the entire Russian ornithological fauna), 57 reptile species and 14 amphibian species.* The degree of endemism of mountainous flora and fauna is the highest among the inhabitants of higher belts. Thus, in the Caucasus among 800 species of vascular plants of the alpine belt 420 are endemic, which amounts to more than 50 per cent.

Assessment of the share of rare species in the total number of flora and fauna species in the Northern Caucasus regions helps to understand the unique nature of their biodiversity (see Table 1). The highest level of biodiversity is typical of Adygeia, Karachaeveo-Cherkessia and Krasnodarsky krai representing the western regions of the Northern Caucasus.

Table 1

Indicators of the share of rare species included in the Red Data Book of the Russian Federation and assessment of uniqueness of biodiversity of the Northern Caucasus regions (average value for Russia amounts to about 1)

1 – the share of the Red Data Book species in vascular plants flora, percentage; 2 – the share of the Red Data Book species in freshwater and migratory fish and *Cyclostomata* species, percentage; 3 - the share of the Red Data Book species in nesting birds fauna; percentage; 4 – the

share of the Red Data Book species in mammals fauna, percentage; 5 – biodiversity uniqueness rate.

Entities of the Federation	The share of rare species in the regions' fauna and biodiversity uniqueness rate (5)				
	1	2	3	4	5
Republic of Adygeia	4	11	14	12	1.40
Republic of Dagestan	3	7	14	9	1.34
Republic of Ingushetia	4	7	13	9	1.34
Republic of Kabardino-Balkaria	3	9	12	13	1.37
Republic of Karachaevo-Tcherkessia	5	10	12	13	1.41
Republic of Northern Ossetia	3	9	13	11	1.36
Republic of Chechnya	4	7	13	9	1.34
Krasnodarsky krai	4	9	14	11	1.38
Stavropolsky krai	3	7	15	9	1.33

Until 1991, there were nearly 40 state natural reserves in the Caucasus, research and conservation activities were coordinated at the central level, while *monitoring of the state of biodiversity and ecosystems* was conducted by all of them using common methodology of the Chronicles of Nature. After the dismantling of the USSR, they were divided by borders, began to develop in different directions and some of them even seized to perform their former nature conservation functions. *The common monitoring methodology* of the state of rare species populations in Caucasus eco-region was disrupted. In the Russian sector of this eco-region the functions of territorial protection of biodiversity and ecosystems, rare species populations monitoring and ecological education are performed by 6 natural reserves and 3 national parks – Caucasian, Teberdinsky, Northern Ossetian, Kabardino-Balkarsky, Dagestansky, Erzi, Sochinsky, Alania and Prielbrusie. All of them, with the exception of a recently established Erzi reserve, have been engaged in flora and fauna monitoring for many years. Since 1998 they have been organized into the *Association of the Northern Caucasus specially protected natural areas.* One of the Association's priorities is to monitor the state of biota and ecosystems of the eco-region. It is the reserves that are capable of supplying the most adequate information on the state of rare species populations at their own and adjacent territories.

In addition, monitoring of the state of marine biodiversity is conducted by regional units of the Federal Fishery Agency. Game mammals and birds are the responsibility of the Federal Veterinary and Phyto-Sanitary Oversight Service (Office of Game Species Protection, Reproduction and Use) which conducts annual animal censuses in the pre-catch period.

What are the main trends of the state of biodiversity of the Northern Caucasus regions? What are the regional trends of rare species populations and unique natural ecosystems?

1. In general, populations of most of species decrease in numbers. Within certain populations this decrease has reached a critical level which has resulted in their extinction. At the same time, unfortunately, it is extremely difficult to judge the state of populations of certain species outside the protected areas due to lack of information and drastic reduction of the scale of research in the region.
2. The trends in the state of biodiversity, populations of rare species and the level of natural ecosystems transformation differ from one region to another. Species not affected by human activities (for instance, some predators previously hunted for fur) in recent decades have displayed a natural increase in their numbers. In the early 1990s, restoration of certain populations has been facilitated by reduction of pressure on mountainous pastures, abandonment of farmlands and scaling down of logging in the forests.

3. For animal species subjected to cyclical changes in numbers depending on climate changes (for example, for many hoofed animals, depending on the height of snow cover), human pressure together with climatic abnormalities has resulted in synergic effect of different factors and, consequently, in a drastic decrease in their numbers (which is the case with Caucasian aurochs).
4. In the populations of animal species which have been under critical pressure of hunting and poaching for many years (brown bear, noble deer, chamois, etc.) we can see structural group, age and sex changes. Thus, in the 1920s the population of brown bear inhabiting the Caucasian natural reserve was dominated by large animals (80 per cent), while by the year 2000 their share amounted to only 37 per cent. The reasons lie in their selective shooting in the course of hunting and poaching.
5. The Caucasus SPNA system does not ensure efficient protection of large predators and hoofed animals affected by seasonal migrations. First, there are no transboundary measures facilitating migratory species conservation. And second, the SPNA system itself is not representative enough and does not cover mid- and low ranges, which leads to universal reduction of species numbers in the unprotected mountainous forests and steppes. Thus, habitats of chamois in the Northern Caucasus are now sporadic and can be seen mainly in the highlands. Only in natural reserves this species can still be found within the lower belt. Its total numbers as well as the numbers of individual populations decrease.
6. SPNAs play a positive role in fauna conservation only in respect of highland species (Caucasian black grouse, Caucasian aurochs, keklik, wild turkey). Their numbers here are relatively stable and even increases.
7. The trends in the numbers of certain animal species in different regions of the Northern Caucasus identified in the process of monitoring vary widely. With a high level of poaching load, populations prefer to stay in inaccessible mountainous regions, reserves and protected hunting areas.

The trends in animal numbers changes typical of midlands and highlands of the Northern Caucasus can be traced using *Kabardino-Balkaria* as an example. Here, from 1990 to 2004 the numbers of different species decreased as follows: boar – from 10 460 to 5 797, noble deer – from 1200 to 770, Caucasian aurochs – from 21 310 to 15 513, chamois – from 700 to 350, badger - from 2 220 to 739, wild cat – from 950 to 541. On the other hand, there have been practically no changes in the numbers of roe deer – decrease from 2 100 to 2 260, bear – decrease from 641 to 449. Certain increase in numbers display lynx – increase from 471 to 538, jackal – from 820 to 1 112 and wolf – from 135 to 354.

As for birds, the most drastic decrease display wild turkey (from 11 350 to 7 244) and Caucasian black grouse (from 6 725 to 1 867), while at the same time the numbers of keklik population have increased (from 1 578 to 4 473).

In general, out of 23 game animal species in the region 14 display a sustainable decrease in their numbers. The numbers of chamois, noble deer and aurochs have come close to a critical level. SPNAs play a positive role in conserving fauna of only highland species (Caucasian black grouse, Caucasian aurochs, keklik, wild turkey). As for mid- and lowland species, especially forest ones (such as aurochs, reindeer roe deer and chamois), territorial protection is ineffective while their numbers tend to decrease.

In *Northern* Ossetia aurochs' population is in a depressed state. In the Northern Ossetian natural reserve and Tseisky reservation, where its population formation started from 26 Caucasian-Belovezhsky aurochs brought here in 1964-1967, its maximum numbers amounted in 1990 to 270 heads. In those years these species negatively affected forest restoration, particularly in the winter period, with density of 15-50 heads per thousand ha. In 1998 there were only 56 heads left, while by 2004 – less than 50. The isolated population of the Northern Ossetian hunting area decreased from 25 to 5 heads (2004) and there is a real threat of this species

extinction. The main reasons include not only poaching the scale of which increased in the first half of the 1990s as a result of multiethnic conflicts escalation and proliferation of light arms among the local population, but climatic abnormalities of the last decade, such as repeated snowy winters, as well.

In the Northern Ossetian pilot hunting area the numbers of certain species decrease at a slower pace, although despite additional feeding and breeding the numbers of Caucasian aurochs and chamois have still fallen from 1300 (1990) to 1115 (2004) and from 93 to 65, respectively. Hunting as a recreational activity (here you can meet hunters from Germany, Austria, France, Hungary, Romania, Sweden, Denmark, USA, Japan, etc.) with strict planning, poaching control and biotechnical activities has little effect upon animal populations (annually, the area is visited by some 20-22 foreign hunters). After Beslan events the activity in the region is scaling down.

In *Dagestan* which is the home place of 7 out of 9 species of Caucasian hoofed animals, including Dagestan aurochs, Besoar goat, chamois, roe deer, noble deer, boar, saigak (migration visits), the situation with their protection is dramatic. The numbers of Dagestan aurochs amount to some 20 thousand heads. This population is constantly decreasing due to increased pressure on of sheep pasturing on mountainous grasslands and mass poaching. The population of Besoar goat amounts to nearly one thousand heads (2004), while just in the early 1990s it amounted to 2 550 heads. Dagestan represents the main habitat of this species (2500 km^2). Reduction in numbers goes at a fast pace, and in the last five years this species has displayed more than a two-fold decrease. The main reason lies in poaching (proliferation of light arms among the local population and new location of border guards in inaccessible areas that were not formerly visited by hunters). Chamois has never been an abundant species in the Republic. Now its numbers amount to some 300 heads, while in the early 1990s they reached 400-500 heads. The reasons of reduction include its ousting from mountainous grasslands by domestic animals, poaching and anxiety factor growth. The state of roe deer population is relatively stable (amounting to about 2400-2600 heads). It depends on the state of forest vegetation. Its numbers vary depending on the state of snow cover in the mountains and availability of food. The numbers of noble deer decrease. For example, from 1997 to 2000 they fell from 541 to 232 heads. At the same time, the midland population numbers are relatively stable. One of the reasons is that the mountainous deer population hibernate in Lagodekhsky and Zakatalsky natural reserves, which report high mortality of animals, seemingly as a result of poaching. Saigak is yet another species engaged in transboundary seasonal migrations. In the 1950-1970s its Prikaspian population came up to the northern regions of Dagestan which gave rescue up to 2 thousand heads in low-food winters (1999). In summer this species is rarely seen here. In recent years the number of animals engaged in winter migrations has decreased. The southern border of migrations moved nearly 10 km to the south.

These trends in biodiversity modification in the region demonstrate the need:

1) to unite the efforts of countries of the Caucasian region in its unique flora and fauns conservation;

(2) to establish a single system to monitor the state of indicative species populations depending on the existing SPNA network;

(3) to develop regional interstate strategies and special programs for conserving certain rare species that find themselves on the verge of extinction;

(4) to develop specific activities under “The Eco-regional Plan for the Caucasus Nature Protection” (October 2005) to conserve species biodiversity and to monitor its state in the eco-region.

2. Use of Natural Resources:

At the modern stage the state of biodiversity in the Northern Caucasus is adversely affected by *poaching* (illegal logging, non-regulated pasturing, hunting of hoofed animals, collection of plants, etc.) connected with poverty and mass unemployment of the local population. Vertebrate

animals subjected to hunting and fishing also find themselves under intensive pressure. Exhaustive and uncontrolled fishing and hunting put these species on the verge of extinction. An unprecedented *increase of the stock of light arms in the hands of individuals*, local wars and armed interethnic conflicts also present a considerable threat to the animal world, as well as to vegetation cover of mountainous areas. For instance, it is estimated that the local military conflicts of the late 20th – early 21st centuries have affected no less than 30-35 per cent of the total Northern Caucasus area and have caused disappearance of some populations of hoofed animals, destruction of unique, previously protected ecosystems, deforestation on considerable areas, particularly on mountain slopes, and erosion intensification. The use of modern arms in the course of local conflicts has irreversible implications connected with erosion development which complicates ecosystems restoration. The consequences of wars and conflicts exacerbate difficulties related to conservation and sustainable use of biodiversity resources. After termination of military activities a considerable part of the regions total area becomes prone to unpredictable and drastic changes of natural complexes.

The peculiarity of implications of man-induced transformation of the Northern Caucasus mountain ecosystems connected with the use of resources is that due to its "transit position" biota becomes more vulnerable to anthropogenic pressures. Intensive *impact of agriculture* on the mountains experienced for many centuries has serious implications and often leads to irreversible ecosystem transformation through a so-called "cascade effect". On the other hand, however, a mosaic nature of the ecosystem cover as well as the proximity of analogous ecosystems makes it possible to expediently restore ecosystems and biota through intensive inter-ecosystem exchange in case of elimination or reduction of anthropogenic pressure. Thus, biodiversity conservation is easier ensured in the mountainous regions than on plain lands where horizontal inter-ecosystem interactions between isolated ecosystem fragments are less tight, while the depth of disturbed areas modification is higher. And therefore the efficiency of territorial protection of biodiversity within the agrarian landscape of the Northern Caucasus can be very high.

Traditionally, the Northern Caucasus is viewed as an agricultural region. Development of *energy and production* and their impact on ecosystems is spatial. At the same time the capacity of these sectors of economy here is particularly high. Indeed, local hydrological resources being one of the largest in Russia, comparatively small reserves of oil and natural gas facilitating the development of heat energy and fuel industry as well as availability of poly-metals and rare elements in the region make the development of this sector of economy rather promising. The strategic reserves of raw materials for production of cement, processing of which represents one of the most ecologically dangerous types of production, is worth mentioning as well.

a. Agriculture

Agriculture should be viewed as a leading factor that determines the modern state of biodiversity in the region where natural fodder fields, according to land census, amount from 30 to 60 per cent of its entire area (see Table …). The numbers of stock owned by the population and agrarian enterprises in relative terms is higher than in other regions of Russia (see Table 11).

Unfortunately, a considerable part of natural fodder fields representing alpine and sub-alpine meadows, mountainous steppes and their man-induced modifications in the Northern Caucasus has degraded as a result of over-pasturing, erosion and pollution.

The group of three leading grain producers still includes two Northern Caucasus regions – Krasnodarsky krai (8.3 million tons) and Stavropolsky krai (6.7 million tons). These regions also take the lead in terms of other agricultural crops requiring intensified agrarian production (such as white beet, sunflower and maize). Vineyards occupy relatively large areas, especially in the Western Caucasus. The area of plowed field is also rather extensive, although (excluding Dagestan, Krasnodarsky krai and Stavropolsky krai) it shows some signs of reduction (see Table

13), in contrast to stock numbers which in recent decades have began to recover after a decline experienced in the 1990s (see Tables 14 and 15).

In contrast to small-scale and ecological agricultural activities conducted in the mountainous regions of the Northern Caucasus, agrarian enterprises of Krasnodarsky and Stavropolsky krais located on highlands or plains make wide use of mineral fertilizers and pesticides. Biodiversity has become adapted to a large extent to the former case and experience big pressure in the latter. This trend can be traced when we analyze data on the state of populations of the most vulnerable animal and plant species some of which has already disappeared from the agrarian plain areas of Krasnodarsky and Stavropolsky krais, Northern Ossetia and other regions.

Agricultural development of the Northern Caucasus using modern technologies leads to the dismantling of isolating barriers, partial destruction of biota and related reduction of biodiversity. These processes also result in invasion of plain species, including alien ones, and, finally, in the replacement of mountainous species by widely available weeds. In the first place, this reduces the evolutionary capacity of mountainous ecosystems which loose their role of biodiversity donors, which, in its turn, negatively affects biota of plain areas as well. In addition, those species that have replaced specialized mountainous forms are not capable of performing to a full extent the function of mountainous ecosystems that makes mountainous biota a stabilizing force of landscape. After having reached a certain degree of abundance, alien species can transform mountainous biota habitat to such an extent that it can begin to self-destroy and, as result, lead to the loss of sustainable mountainous landscapes in general.

However, agro-landscapes of the Northern Caucasus also display the opposite trend, when for animal and plant species, including rare ones, agro-landscape grasslands become typical habitats. These species are well-adapted to agricultural production, engage in agro-ecosystem functioning and find additional (and sometimes even the main) feeding sources. In this respect, it is necessary to mention some insects, such as bumble-bees, wild bees, butterflies, beetles, including very rare and valuable ones for agricultural production requiring the presence of pollinators. Animal species that have got used to this environment include grey hare, fox, polecat, wolf, roe deer, marmot, suslik, mole and mole-rat. Bird species that find themselves at home in agro-landscapes include partridge, black grouse, crane, woodcock, bustard, little bustard, some daylight predator birds and owl. Grassland animals make active use of benefits resulting from co-existence with human beings (such as availability of fields with extra fodder or absence of high herbs) which makes it possible to detect danger early, limits the numbers of predators, etc.

b. Forestry

The Northern Caucasus regions are among the most deforested ones in Russia. Only in Adygeia forest cover amounts to nearly 37 per cent which is mainly due to a large share of protected areas (see Table 2). *Forestry* as an element of industrial infrastructure is not sufficiently developed in the region. The volume of illegal cutting is rather high. For a rather long period of time (until 1960s) the majority of the Northern Caucasus forests have been included in a so-called third forest category (commercial, i.e. available for commercial logging). In the last four decades intensive restoration of forests has been conducted on cutting areas of the second part of the last century. The bulk of forests in the region has been transferred into the first category, i.e. forests having water, soil and erosion protection or other significance (more than 65 per cent of the entire forest area). In these forests only protective or sanitary cuttings are allowed. However, the risk of biodiversity loss as a result of over-cutting persists. Ecologically unjustified cuttings in the upstream of rivers and on steep lopes, as well as destruction of vegetation along highways and railroads in Chechnya and Ingushetia (the so-called “green spots”) as a way of combating terrorism are of particular concern. According to available official data, the volume of cutting in the Northern Caucasus regions does not exceed one or two per cent of timber stock of ripe and overgrown forests. At the same time, public conservation organizations and the local population regularly inform the authorities of mass illegal cuttings of

forests within protected areas. Thus, logging of oak and beech has been conducted for many years in Tsitsa river area (Krasnodarsky krai) in a barbaric way using trailing with heavy machinery. As a result, large areas of box-tree thickets have been destroyed. In Adygeia Republic Pervomaysky, Guzeriplsky and Kurdzhipsky forest farms report regular illegal cuttings in unique broad-leaved forests with selective logging of chestnut-tree, sycamore maple and other valuable tree species intended for export.

Table 2
Forest Fund of the Northern Caucasus regions, 2003

Region	Forest Fund lands' total area, thousand ha			Forest cover, percentage	Total volume of timber standing, Million cubic meters
	Total	Including forest lands	Including lands covered with forest		
Adygeia	340	290	287	37,3	73
Dagestan	528	459	441	8,8	43
Ingushetia	87	82	77	21,5	12
Kabardino-Balkaria	370	212	209	16,7	36
Karachaevo-Tcherkessia	521	433	429	3,0	89
Northern Ossetia	236	193	190	23,7	32
Chechnya	362	340	331	19,1	46
Krasnodarsky krai	1703	1549	1537	20,4	385
Stavropolsky krai	119	104	$97	1,5	11

The volumes of legal and illegal cuttings in the Northern Caucasus regions are considerably higher than the levels of reforestation. In recent decades, the scale of forest planting on cutting areas decreases in all the regions excluding Dagestan, where sand enforcement and deserted and degraded land reforestation activities are included in forest planting.

It should be noted that it is the mountainous forest ecosystems of the Northern Caucasus that serve as habitats for a great number of plant and animal species, including rare ones. The lack of highland forest SPNAs in the regions together with illegal cuttings negatively affects the state of its biodiversity.

c. Industry and mining

Industries that seriously affect biodiversity in the Northern Caucasus the most seriously include (see Table 3):

- Energy sector (especially, thermoelectric power stations working on mazut and coal and producing considerable emissions into the atmosphere) – in Dagestan, Ingushetia, Chechnya, Kabardino-Balkaria, and Stavropolsky krai, as well as hydroelectric power stations;
- Fuel sector (oil and natural gas) in Stavropolsky krai (the level of production is decreasing), and mostly in Chechnya and Ingushetia, based on local raw materials, which, in the modern environment, is practically destroyed; thus oil production in the last 15 years has fallen here from 4 200 thousand tons (1990) to 1 975 thousand tons (2004) and gas - from 1 493 million cubic meters (1990) to 513 million cubic meters (2004);
- Mining and processing of other minerals in Northern Ossetia (the activities of zinc, lead and chrome enriching enterprises in Alagirsky and Kurtatinsky gorges as well as the

activities of Mizurskaya enriching factory), in Stavropolsky krai (tungsten-molybdenum deposit), Karachaevo-Cherkessia (Urupsky and Zelenchuksky ore mining and enriching enterprises, poly-metals deposit), etc.

- Extraction and production of construction materials, particularly cement, with large processing enterprises located in Krasnodarsky krai and Karachaevo-Cherkessia (3 121 tons a year and nearly 2 thousand tons a year, respectively)
- Chemical production in Karachaevo-Cherkessia (production of synthetic pitch and plastics) and Stavropolsky krai (production of mineral fertilizers);
- Food industry, particularly production of vodka in Northern Ossetia and Kabardino-Balkaria, which hold the 4th and the 5th places among 89 Russian regions, respectively.

Table 3
Sectoral structure of Northern Caucasus' industry, percentage (illustrating industries presenting most pressing threats to the region's biodiversity)

Region	Energy	Fuel	Construction materials production	Ferrous and non-ferrous metals	Chemistry	Mechanical engineering	Forestry	Food
Adygeia	8,3	0,3	6,8	0,3	1,3	16,0	15,0	48,2
Dagestan	21,9	19,8	5,6	-	2,9	13,4	0,4	32,7
Ingushetia (together with Chechnya)	30,8	48,8	13,3	-	1,7	1,0	0,3	3,2
Kabardino-Balkaria	18,0	0,1	3,5	4,5	0,5	27,5	0,7	40,3
Karachaevo-Tcherkessia	18,1	-	26,6	3,5	17,7	4,2	1,1	27,2
Northern Ossetia	11,8	0,2	4,6	15,7	1,4	6,7	1,7	50,5
Chechnya	see Ingushetia							
Krasnodarsky krai	13,6	7,4	8,0	1,2	2,9	9,6	3,6	46,9
Stavropolsky krai	27,3	5,3	2,2	0,4	19,2	13,3	0,8	23,7

Data on the structure of industrial production presented in Table 3 demonstrate regional peculiarities of its possible negative impact on biodiversity. However, it is necessary to note that today the levels of production in the region are the lowest ones for the last decade. Consequently, its impact also has the lowest value. Despite drastic reduction of the levels of mining and processing of mineral resources in the regions, there are still many sources of pollution here (dumps, depots, etc.). Most of the regions experience economic advance and this requires urgent measures to prevent possible strong pressures on biota and ecosystems, such as the establishment of new protected areas, particularly in the mid-ranges and lowlands, development of rare species conservation programs, expansion of ecological education and training activities and so on. These measures are outlined in detail in the Ecological Plan for the Caucasus Nature Protection (October 2005) for six Caucasian states, but are not aligned with any specific issues or "focal points" of the regions comprising the Russian sector of the Caucasus.

Production growth experienced by the regions in the last decade presents a real threat to biodiversity, particularly through emissions into the atmosphere and unprocessed waste disposal into water basins. However, available data show that industrial production growth does not

necessarily lead to its increased impact on nature. For example, before the start of perestroika the bulk of atmospheric emissions was produced by oil and natural gas enterprises in Ingushetia and Stavropolsky krai. Currently, these sources of pollution produce minor effect. The activities of several mining enterprises in Checheno-Ingushskaya republic and Stavropolsky krai are scaling down, while several mining enterprises in Northern Ossetia and Kabardino-Balkaria have become major users of fresh water and the main polluters of groundwater and watersheds. The system of agrarian production in arid regions of the Northern Caucasus (for instance, in Dagestan) where water had been used primarily in irrigation facilities which are currently out of order has changed drastically. All this produces positive effect upon the state of biota and ecosystems, the pressure on which has now decreased. However, in exchange, as a result of rapid rise of unemployment and deterioration of the level of living in the Northern Caucasus the scale of poaching and uncontrolled use of bio-resources, such as fodder fields for near-by pasturing, collection of wood for heating and cooking, construction and exchange, wild hoofed animals to compensate for losses of income, mushroom, berries, medicinal plants and so on, has considerably increased.

d. Transport

The best indicator of the impact of transport on the state of biodiversity and natural ecosystems of the regions of Russian sector of the Caucasus is the density of railroads and highways. It should be noted that this indicator is one of the highest in Russia. For example, in this respect Northern Ossetia and Kabardino-Balkaria hold the 3d and the 6th places among 89 entities of the Federation, respectively. In addition to natural ecosystems fragmentation level and the magnitude of the anxiety factor roads density indicator reflects possible accessibility of the territory for visits and use of bio-resources.

The Government of the Russian Federation has considered many plans related to construction of new roads and expansion of the existing network of highways and railroads. The most well-known projects include the construction of a highway across Lagonaki plateau to Dagomys through the Caucasian biosphere reserve, included in UNESCO World Natural Heritage List. The highland Lagonaki plateau possesses the richest biodiversity in the entire western Caucasus.

Another project provides for construction of a highway Psebai - Krasnaya Poliana and skiing resort “Krasnaya Poliana” and development of its sites within the protected area and establishment of infrastructure that includes a road network for the skiing resort on Lagonaki plateau by means of alienating of Lagonaki plateau and Fisht-Oshtensky forest block from the Caucasian natural reserve. Finally, the development of an Olympic complex for winter sports in “Krasnaya Poliana” as well as construction of a skiing base for the President of Russia in “Lunnaya Poliana” (Krasnodarsy krai) is also connected with transport network development and presents considerable threat to the state of biodiversity in the region.

e. Fishery

The issue relating to the impact of *fishery*, particularly that of illegal fishing on the state of biodiversity, is not so acute in the region, although in Dagestan it is an urgent matter and is of particular importance for the fate of Dagestansky natural reserve. Kizliarsky bay is the main fishing site along the entire Dagestan coast of the Caspian sea. It serves as habitat for some 70 species of marine and freshwater fish, including all sturgeon species. The aquatic basin of Dagestansky natural reserve serves as the reproduction place for 70-80 million fries of valuable game species. Here they develop into game species. Unfortunately, the scale of poaching in the territory of the reserve in recent decades undermines all efforts aimed at protecting fish resources and rare fish species, including sturgeon species. Catching despite various bans and large fines is pursued not only by the local population and in-coming poachers, but by certain organizations as well. The same problems connected with poaching are experienced in the coastal waters of the Black sea, in the downstream waters of Terek, Sulak and Kuban rivers where poaching together with other factors (development of alien species of hydrobionts, oil pollution and wastes form agricultural fields) remains among the major challenges.

f. Tourism

The main tourist centers of the south part of European Russia are located in the Northern Caucasus: the Caucasian Mineral Waters, the Black sea coast, the Elbrus Foothils as well as Sochi national parks, Krasnaya Poliana, etc. Several million tourists and visitors come to these places each year. At the same time the bulk of the recreational load falls on a narrow strip of the Black sea coast (where nearly 7 per cent of all Russian tourists stay each year during the warm season). Due to the lack of adequate infrastructure, regulation of movement and accommodation of tourists the coastal areas here feels an enormous pressure even in those regions that lack well-organized beaches and hotels. For example, in the future the loss of the last remaining pieces of natural coastal vegetation threatens the environs of Gelendzhik and Novorossiysk.

The internal regions of the Northern Caucasus, especially the Caucasian Mineral Waters, have used to accept a large number of tourists who have spread across tourist facilities of Kabardino-Balkaria, Northern Ossetia and Karachaevo-Cherkessia. Today, tourist flows in these regions have slowed down, while the recreational load on natural ecosystems has decreased.

Specially protected natural areas of the Northern Caucasus have an impressive potential for ecological tourism development. The Caucasian Mineral Waters have 20 established tourists routes that have been used for many years. The Caucasian natural reserve alone has established 7 tourist routes. Active work with tourists is underway in Teberdinsky natural reserve where an ecological education center has been set up recently. Despite the fact that the flows of tourists who have traditionally visited the natural reserve in Teberda and Dombai have declined considerably in the last decade, work with tourists here continues. For its regulation, six check points have been established that help to regulate visits to the most attractive tourist sites. In the Northern Ossetian natural reserve there are two alpine bases and an open path to Tseisky glacier. Thousands of tourists each year visit Kabardino-Balkarsky natural reserve where some famous alpine camps and tourist bases are located (“Bezengi”, Tchegem” and “Bashil”) with three well-established tourist routes.

It can be expected that in the years to come after the reduction of tension in Chechnya and termination of inter-ethnic conflicts in the national republics of the Northern Caucasus the scale of tourist activity will increase considerably. It is necessary to get ready to this situation, inter alia to develop new routes, to establish transport infrastructure and hotels net and to investigate new possible routes.

3. Protected Areas and Ecological Networks

Within the Russian sector of the Caucasus there are nearly 870 protected natural areas, including 11 of federal significance (6 natural reserves, 3 national parks, 2 reservations), a higher number of sites of regional importance and nearly 30 SPNAs of local significance (see Table 4). Together with the areas occupied by forests belonging to the 1st group as well as the sites of protected coasts of the Caspian and Black seas, SPNAs of the region make up one of the largest eco-networks in Russia, where the share of sites with the legal status of protected areas attains in certain region 20-40 per cent of their entire area.

Table 4
Federal, regional and local protected natural areas of the Northern Caucasus (as of 2002)

Region	Share	Number of specially protected natural areas (SPNAs)				All forms, total	
		Natural reserves	National parks	Regional SPNAs	Local SPNAs	Number	Area, thousand ha
Adygeia	30	1	-	10	22	33	234,5
Dagestan	11	1	-	14	-	18	596,2

Ingushetia (together with Chechnya)	9	1	-	1	-	2	76,0
Kabardino-Balkaria	28	1	1	187	-	191	350,4
Karachaevo-Tcherkessia	12	2	-	80	-	83	174,3
Northern Ossetia	27	1	1	78	-	82	217,6
Chechnya	8	-	-	1	-	1	100,5
Krasnodarsky krai	8	1	1	427	6	437	732,2
Stavropolsky krai	<1	-	-	33	-	33	35,7
Total		8	3	831	28	870	2467,4

The most efficient forms of territorial protection of nature in the region are natural reserves, as well as national parks that combine nature protection with ecological education activities (see Table 5). Unfortunately, the selection of their location and establishment have pursued other goals rather than those of ensuring maximum representation and conservation of unique biodiversity of this eco-region. For example, one of the aims was to make sure that each region had an SPNA of federal significance. As a result, the existing SPNA system retains primarily highland ecosystems, does not fit well into the system of water basins, does not include the key seasonal migration routes used by hoofed animals and large predators and does not take into account the entire diversity of alpine and sub-alpine, forest, steppe and semi-desert ecosystems of the region. Unfortunately, other forms of SPNAs do not perform this function.

Table 5
Northern Caucasus natural reserves (1-6) and national parks (7-9)

	Protected area	Area	Year of establishment	Coordinates	
1.	Dagestansky	19,061	1987	$46^0$50'	$44^0$40'
2.	Kabardino-Balkarsky	82,507	1976	$43^0$00'	$43^0$00'
3.	Caucasian	280,335	1924	$40^0$40'	$43^0$40'
4.	Northern Ossetian	29,530	1967	$44^0$00'	$42^0$40'
5.	Teberdinsky	85,064	1936	$41^0$40'	$43^0$20'
6.	Erzy	5,970	2000	$44^0$58	$42^0$48
7.	Alania	54,900	1999	$43^0$40'	$42^0$50'
8.	Prielbrussky	100,400	1986	$42^0$40'	$43^0$20'
9.	Sochinsky	190,000	1983	39-40'	43-40'

At the same time, natural reserves and national parks in terms of the level of biodiversity preserved within federal SPNAs have no match not only in Russia but in neighboring countries as well. The inventory of biodiversity here is far from being complete, and we can expect that these indicators are even higher. This relates to both rare and disappearing animal and plant species included in the Russian Red Data Book. Their share in the Northern Caucasus SPNA flora and fauna is as follows: vascular plants – 4 per cent, fish – 9 per cent, birds – 13 per cent, mammals – 11 per cent. In general the number of protected rare species of plants, including the Caucasus endemic species, amounts to 134 and 65, respectively.

The existing system of SPNAs in the Northern Caucasus makes it impossible to achieve the targets of the Countdown 2010 Initiative connected with biodiversity conservation and reduction of its losses. The regional SPNA network is not efficient enough as well. It requires:

1. To set up a chain of transboundary SPNAs together with Azerbaijan and Georgia;
2. To establish new SPNAs in mid-ranges and lowlands, as well as in the foothill areas of Stavropolsky krai;

3. To expand the existing SPNA system with due regard to a basin principle of protected areas establishment in the mountains;
4. To strengthen the federal and regional SPNAs protection services;

4. Public Participation and Awareness

Public movement for wild nature conservation in the Northern Caucasus regions remains very strong. At the same time, a mechanism for coordinating their activities is lacking. International and federal NGOs cannot cope with this task. A list of several existing environmental NGOs at the regional level and some NGOs at the central level engaged in Caucasian nature conservation is provided below (see Table 6). In addition, a list of experts, primarily regional ones, concerned with the Northern Caucasus wild nature conservation is provided (see Table 7). It is envisaged to compile full lists of experts active in the field of the Caucasus biodiversity which could be involved in the future in the implementation of thematic and targeted projects, research and informational and organizational support of the Eco-Regional Plan for the Caucasus Nature Protection.