Russian Academy of Sciences

Ministry of Natural Resources of the
Russian Federation

National Strategy of Biodiversity Conservation in Russia

Moscow - 2001

The National Strategy of Biodiversity Conservation in Russia was approved at the National Forum on the conservation of living nature (Moscow, June 2001).

The text of the Strategy was jointly discussed by representatives of academic and applied research institutes, institutions of higher education, ministries and departments, public organizations, business sector, deputies of the State Duma of the Federal Assembly of the Russian Federation.

Contents

Introduction

A threat of the global ecological crisis at the break of the 20th century dictates the necessity to elaborate a strategy for optimal coexistence of man and nature. The adoption of many important decisions in the field of ecology by the UN Conference on the Environment and Development (Rio de Janeiro, 1992) and signing of the Convention on Biological Diversity by many countries including Russia proved to be key events in the history of mankind.

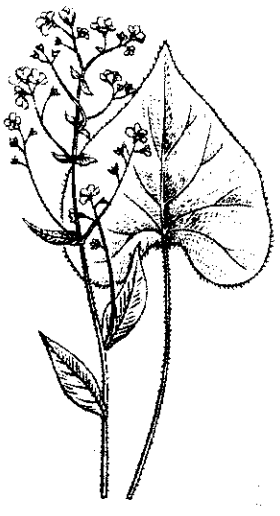
By biological diversity in the context of the Convention is meant "the variability of living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems, and ecological complexes which include them as parts; this definition includes also the diversity within species, between species, and diversity of ecosystems."

Impaired biodiversity is a most important environmental problem facing mankind. Many natural ecosystems have been destroyed which resulted in the extinction of living organisms associated with them. One-fifth of the Earth's land surface has suffered a complete change of natural ecosystems. Thousands of plant and animal species are now threatened: over 9 thousand species of animals and almost 7 thousand species of plants are included in the IUCN Red List (2000). The extinction of 484 animal and 654 plant species has been documented since 1600. In fact, several times this number have disappeared or undergo a threat of extinction.

A further decline in biodiversity may lead to destabilization of the biota, the loss of integrity of the biosphere and its ability to maintain the principal characteristics of the environment. As a result of irreversible transformation of the biosphere, it may become unsuitable for human life. The maintenance of biological diversity on Earth is an indispensible prerequisite for the survival of man and sustainable development of civilization.

Russia plays a key role in the conservation of global biodiversity and maintenance of major functions of the biosphere because its vast territory still supports the largest natural ecosystems and a considerable part of the world's biodiversity.

The National Strategy and the Action Plan for biodiversity conservation in Russia have been elaborated to promote fulfillment of the country's commitments as a member of the Convention on Biological Diversity.



Mission

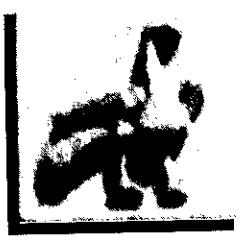
- National Strategy is a document of long-term planning.
- National Strategy determines principles, priorities, and policies of the country concerning biodiversity conservation.
- The Action Plan, a system of concrete measures and actions aimed at biodiversity conservation, is worked out on the basis of National Strategy.
- National Strategy determines main lines of elaboration of legislative and normative legal acts, a system of organizational, administrative, financial, and economic mechanisms to ensure conservation and sustainable use of biodiversity, conservation strategies for particular species and ecosystems, action plans and strategies of governmental, public and commercial bodies to the same effect.
- The Strategy expresses common aspirations of the Russian society to safeguard biodiversity thus opening the possibility for active participation of all interested parties.

Subjects

Being a document of national scope, the Strategy is designed to envolve a wide range of subjects:

- Citizens of Russia.
- Legislative, executive, and judicial bodies at federal and regional levels.
- Local self-government bodies.
- Companies and enterprises engaged in industrial production, construction, extraction and trteatment of natural resources, agriculture, forestry, fishery and hunting, transportation and communication, trade, and communal services.
- Banks and other financial structures.
- Mass media.
- Educational, cultural, scientific, and public health facilities.
- Political parties and movements.
- Religious confessions.
- Russian and international public organizations.
- Foreign juridical and physical persons acting on the territory of the Russian Federation.

1. Specific Features of Biodiversity in Russia and Socio-Economic Conditions Influencing It



A vast territory occupied by Russia (17 million sq. km), its highly diverse natural and socio-economic conditions, and enormous length of land and sea frontiers taken together account for a unique scope of problems facing the nation in the field of biodiversity conservation.

1.1. General Characteristic of Biodiversity in Russia

● The diversity of non-tropical natural ecosystems of Eurasia (polar deserts, tundras, forest tundras, taiga, mixed and broad-leaved forests, forest steppes, steppes, semi-deserts, and subtropics) is fully represented at the territory of Russia. There is an equally high soil diversity ranging from Arctic soils in the north to brown semi-desert soils and subtropical yellow soils in the south.

The territory of Russia is unique in that it features major planetary latitudinal and zonal trends of biodiversity (well-apparent zonal succession of natural ecosystems).

Russia hosts more than a quarter of the primeval forests still remaining on Earth. Russian forests account for about 22% of the world's forest resources and 40% of the most valuable coniferous stands. The total forest cover in Russia exceeds 6 million sq. km, with swamp forests occupying 1.5 million sq. km.

Russia has the largest wetland systems in the world with its almost 120 thousand rivers totalling 2.3 million km in length and about 2 million lakes having a total area of 370 thousand sq. km (the Caspian Sea excluding). The area of man-made water reservoirs is 65 thousand sq. km. Peatlands and marshes occupy 1.8 million sq. km. They and the lakes collectively cover ca. 15% of the Russian territory (up to 85% in some regions). Thus, wetlands are of primary importance for the formation of the natural physiognomy of the country.

Russia plays the leading part in the protection of Arctic ecosystems and their biodiversity. About a third of the entire Arctic zone is situated within the Russian sector where the most typical territories of this region support characteristic Arctic ecosystems and their complexes. About 80% of the Arctic species diversity is represented in Russia, and almost 90% of the true Arctic forms live in the Russian Arctic.

About a quarter of the Russian territory is occupied by mountains: they occur in 43 of the 89 administrative regions of the Russian Federation. Mountainous areas of Russia feature a great variety of natural conditioins.

Russia is bordered by 13 marginal seas of three oceans (Atlantic, Arctic, and Pacific). The country's coastline stretches some 60 thousand km, and is thus the world's longest one.

• A major part of species diversity of Northern Eurasia, the largest land mass on Earth, is concentrated in Russia.

The flora of Russia includes more than 12,500 species of wild-growing vascular plants, over 2,200 species of mosses and liverworts, and ca. 3,000 species of lichens. Soils and waters of Russia including seas give home to 7,000-9,000 species of lower plants (algae); the number of fungi amounts to 20 -25 thousands.

The vertebrate fauna comprises 1,513 species, viz. 320 mammals, 732 birds, 80 reptiles, 29 amphibians, 343 freshwater fishes, and 9 cyclostomates; in addition, there are 1,500 marine fish species in Russian seas. The fauna of invertebrates comprises about 100 thousand species. Many of them are endemic to Russia.

• Unique natural complexes designated as UNESCO's natural and cultural heritage sites as well as centres of endemism are situated at the terrotory of Russia, such as Kurskaya Kosa (Courland Spit), coastal waters of the Barents Sea, the Caucasus, virgin forests in the north of the European part of Russia and in Siberia, the Volga Delta, Caspian Sea, Putorana Plateau, Altai, Lake Baikal, Transbaikalia, southern quarters of the Russian Far East (Primorye), Kamchatka and Chukchi Peninsulas, Wrangel Island, and other territories requiring special attention in the context of biodiversity conservation in Russia.

• According to the UNEP criteria, 65% of the territory of Russia remains virtually unchanged by economic and other human activities and supports undisturbed ecosystems.

Around 20% of the territory has suffered considerable human impact, but its ecosystems are still viable (even if partly destroyed) and retain the potential for compensation at the current rate of anthropogenic changes.

About 15% of the territory of Russia occupied by two thirds of its population is considered to be ecologically unsafe as undergoing progressive destruction of natural ecosystems and soil degradation (urban agglomerations, industrial, mining, and agricultural regions in the European part of Russia, the Urals, Siberia, and the Far East). In Russia, 124 million hectares of agricultural land (56%) are vulnerable to or actually undergo water and wind erosion.

• Unlike many other countries, Russia experiences relatively low anthropogenic transformation of natural ecosystems on a large part of its territory (northern and Asian regions). This accounts for the fact that many of them remain virtually unchanged and may serve as standard natural features. Thus far, many types of ecosystems appear to face no serious risk. In the first place, these are tundra, northern and southern taiga biomes, and most Arctic seas only slightly affected by human impact (with the exception of certain areas subject to intense economic developments).

Generally speaking, species diversity in Russia is also safe. Main faunistic and floristic complexes of all landscape zones of the country as well as freshwater and marine ecosystems still survive.

• Despite the apparent safety of biodiversity in Russia, some types of ecosystems and animal species are in a catastrophic state, that is on the verge of extinction. In particular, the biomes of European steppes and broad-leaved forests have almost disappeared, being represented today by

*Here and hereinafter in the text of the Strategy, whenever a mention is made of a sea, mountain system or other large natural complex which occupies the territories of several countries, its part under the jurisdiction of the Russian government is regarded as an object of the Strategy.

small fragments at specially protected natural territories and military testing sites closed to the public. A large number of species are rare or endangered and require special attention. The Red Data Book of Russian Federation lists 114 species and subspecies of animals (Red Data Book. Animals, 2011); 516 plant species and 17 fungi are listed in the Red Data Book of RSFSR, 1988.

● Natural ecosystems of Russia are of exclusive value for the biosphere as they perform the most important regulatory functions. The largest peatlands and swamp forests occur in Russia. They play a key role as sinks of carbon facilitating its fixation and maintenance of carbon dioxide balance in the biosphere. Also, forests and peatlands of Russia are the most important terrestrial regenerators of oxygen.

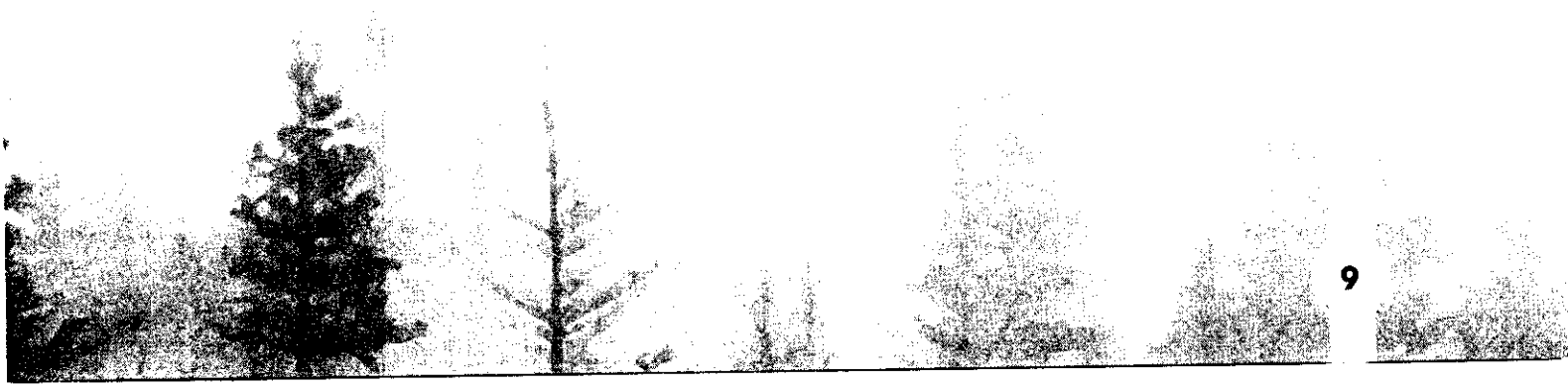
● Northern ecosystems (tundra and taiga) dominate the territory of Russia, especially its Asiatic part, due not only to geographic location of the country but also to its continental climate and an extensive permafrost area in Siberia. These ecosystems are extremely vulnerable, slow in recovering from disturbance, and highly subject to erosion where they are underlain by permafrost if their vegetation cover is destroyed. Ecosystems of northern seas and freshwaters are equally vulnerable.

● A large part of the Russian territory is characterized by highly variable climatic conditions accounting for instability of its ecosystems. Marked annual and secular variations of environmental conditions lead to wide fluctuations in the number and distribution of many species.

● Natural and climatic conditions of Russia account for a relatively low species diversity of natural ecosystems coupled to high intraspecific and intrapopulation diversity. This should be taken into consideration in the elaboration of a system of criteria for the choice of priority objects of biodiversity, organization of monitoring, and planning biodiversity conservation.

● Over 500 local breeds, populations, and stocks of agricultural animals of 36 species are raised in Russia. Five hundred and fifty-six of them are placed on the state register of selected breeds recommended for use in the year 2000. More than 11,000 native varieties of plants are cultivated. A shift to a system of agriculture using industrial techniques, chemical fertilizers and pesticides in the last decades has had a marked levelling effect on agroecosystems and resulted in a decrease of their breed and species diversity.

● High diversity of cultural landscapes embodying harmony of man and nature is characteristic of Russia (gardens, parks, traditional agricultural landscapes, areas of sustainable use of natural resources by indigenous peoples, canal systems of historical value, man-made forests, etc.).



1.2. Social and Economic Conditions Influencing Biodiversity

The following social and economic factors should be considered when addressing biodiversity conservation issues:

- Highly heterogeneous social and economic conditions across the vast territory of the country:
  - uneven distribution of the population;
  - differential orientation of regional economies making them either essentially industrial, agricultural, mining or poorly developed;
  - multinational population incorporating over 50 indigenous minorities that adhere to traditional husbandary and practice different strategies of exploitation of biological resources and biodiversity.

- Resource-oriented economy:
  - key industries relying primarily on the extensive exploitation of natural resources and power-consuming technologies;
  - raw materials as a main export;
  - low efficiency of economic and financial mechanisms for biodiversity conservation, lack of measures and incentives by which to make attractive the rational use of natural resources and power-saving technologies;
  - rapid and high returns from over-exploitation of natural resources;
  - failure to assess and recognize the value of biodiversity as a considerable portion of the national wealth.

- Economic importance of biological resources. Exploitation of forests, fish-stock, game animals, and other bioresources plays an important role in the national economy at large and the leading one in some regional economies. Bioresources are vital for minor ethnic groups deriving subsistence from their traditional use.

- Widespread practice of indiscrete utilization of natural bioresources to fulfill immediate personal needs (hunting, fishing, gathering mushrooms, berries, food plants, etc.).

Poor state of knowledge and understanding of the importance of biodiversity conservation.

Strongly utilitarian attitude towards living nature among Russians promoted by the recent economic crisis. Risk of further "deecologization" of public consciousness.

- Conversion to free market economy; transition from the centralized command planning system to a private-enterprise economy regulated by market mechanisms with a degree of state involvement.

- Predominance of short and medium-term priorities over long-term strategies in government plans and plans of private companies.

● Absence of an integrated approach to the exploitation of natural resources, low levels of elaboration and implementation of programs and projects for comprehensive regional development.

● Incomplete and contradictory legislation concerning nature use and protection, rights and duties of land owners and users. Limited applicability of many legal documents and regulations.

A poorly defined law on separation of property in natural objects under joint ownership of federal and regional bodies. Absence of legal mechanisms for coordinated activities and treatment of debatable issues concerning the use and protection of migrating and other separable bioresources.

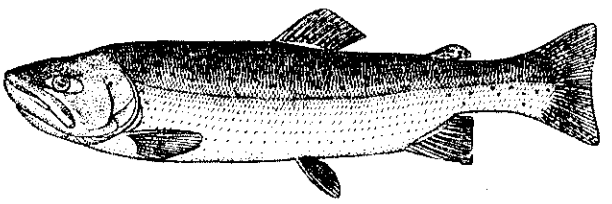
● Ineffective application of the existing laws on biodiversity conservation.

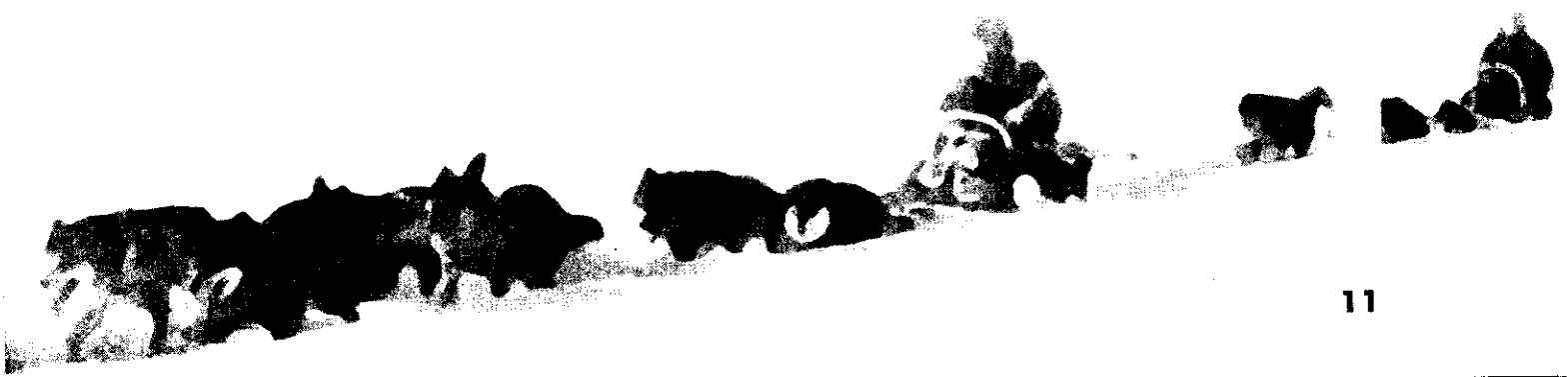
● Low efficiency of state control and supervision over nature conservation and use of natural resources; frequent reorganization of governing bodies; decreased status of nature conservation institutions; chronic shortage of budgetary funds allocated to nature conservation.

● Poor development of the state system for monitoring and statistics of the use of natural resources and environmental protection. Inadequate inventory control during the last years, impaired efficiency of ecological and hygienic monitoring via a network of plague-control stations, polar stations, forestry service, etc. Insufficient or faulty information on the extraction of natural resouces and their abusive exploitation.

● Consequences of economic crisis of the 1990s:
- increased environmental repercussions per unit of production (despite a decreasing trend since 1966); higher resource and power consumption for the country's gross output as a result of the predominance of environmentally unfriendly technologies in the production sector (resource-consuming industries most harmful for the environment were the last to suffer the decline); deterioration of basic stocks; poor technological discipline;
- considerable cuts in investments in environmental protection;
- increased frequency of technogenic catastrophes affecting biodiversity;
- somewhat decreased human pressure on agroecosystems owing to the decline in industry; reduction in the area of land under cultivation; abandonment of remote pastures and hayfields; reestablishment of woody vegetation on agricultural lands especially meadows;
- increased pollution by domestic waste and municipal effluents attributable to the wear and tear of sewage treatment equipment;
- markedly increased poaching and its transformation in many cases to an officially tolerated commercial activity undermining bioresources.

● The following facts are positive:
- well-developed network of nature reserves and national parks occupying around 2% of the total area of the country;
- deep-rooted traditions of environmental research.





1.3. Principal Trends of Human Impact on Biodiversity

Anthropogenic factors and their negative effects on biodiversity are many and variegated. They may be arbitrarily categorized into two main groups, as follows:

- **Direct effects**

Decimation of animal and plant populations resulting from overexploitation, abusive and illegal exploitation; commercial harvesting of living organisms; unwise and nonselective pest control; animal mortality caused by collision with man-made constructions; destroying animals and plants considered dangerous, harmful or unpleasant to people.

Destruction of natural biotopes resulting from their transformation to agricultural lands (e.g. steppes put to cultivation); changes in the make-up of forests and in forestry itself; building; mining; draining of wetlands; water and wind erosion of soils promoted by human activities; construction of hydro-electric power plants and water reservoirs; disappearance of small rivers.

- **Indirect effects** are changes in the natural environment of living organisms. They are largely exerted along the following three lines.

Physical effects, i.e. changes in physical characteristics of the environment, include alteration of soil and ground physical properties; regulation of river channels; overexploitation of water bodies as sources of water supply; seismic surveys and explosion works; effects of electro-magnetic fields, noise and thermal pollution.

Chemical effects, i.e. pollution of water, air and soils with waste matter generated by industry, power plants including nuclear power stations, mining, agriculture (herbicides, pesticides, chemical fertilizers), forestry (chemical weed and pest-killers), traffic, military facilities and operations, domestic and municipal sources, technogenic accidents (oil spills), launching missiles, and also carried by aerial transport (e.g. acid rains).

Biological effects manifest as man-induced changes in the structure of natural biocenoses and ecologically stable natural-cultural complexes include deliberate or accidental introduction of alien species and their self-dispersal; dissemination of infectious diseases of plants and animals; population explosions of certain animal species; potential penetration of natural ecosystems by genetically ngineered organisms, eutrophication of water bodies, depletion of food resources of animals.

As a rule, various human activities (agriculture, building, mining, transportation, industry, recreation, harvesting, etc.) have both direct and indirect effects on natural ecosystems. The latter may act on several targets at a time. Therefore, anthropogenic impacts are often cumulative or synergetic.

It is important to dstinguish between man-induced changes of biodiversity and natural processes of its formation. Natural effects should be considered when it comes to the elaboration of biodiversity conservation programs, but there is no much sense in attempts to block them even if possible. Those anthropogenic factors should be controlled in the first place which are crucial for biodiversity or apt to most seriously affect it.