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## Arctic zone of the Russian Federation: problems of biological diversity conservation

The Arctic region plays a key role in ensuring Russia's national interests and its sustainable development<sup>2</sup>. The Arctic zone of the Russian Federation is one third of the entire circumpolar Arctic area, its total area is more than 6 million square meters. The land area of the region is 18% of the territory of Russia<sup>3</sup>. As noted in the State Program of the Russian Federation "Socio-economic development of the Arctic zone of the Russian Federation for the period until 2020"<sup>4</sup>, ensuring environmental safety is one of the priority areas for the development of the Arctic zone of the Russian Federation and ensuring national security. An important role in this process is played by the conservation of biological diversity.

According to Convention on Biological Diversity, adopted in Rio de Janeiro on 5 June 1992, term "biodiversity" includes both the individual species of living organisms and the ecosystems and ecological complexes of which they are a part, including diversity within the species, between species and ecosystem diversity (Article 2 of the Convention)<sup>5</sup>. At present, the intensity of the processes of destruction of natural ecosystems and the disappearance of species of living organisms is steadily increasing in the whole territory of the globe, thousands of species of plants and animals are under threat of extinction<sup>6</sup>.

Reduction of biological diversity is recognized today as one of the key environmental problems throughout the world. It should be noted that the biological diversity of the Arctic (and especially its ecosystems), due to the specifics of the region, is the most sensitive to the influence of various kinds of negative factors, both natural and anthropogenic. However, despite the harsh climatic conditions on land, natural systems in the Arctic region are quite diverse. According to some data, up to 25,000-26,000 species are represented in the Arctic, i.e. about 1.5% of the species described on the globe<sup>7</sup>. The habitats of unique species

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<sup>2</sup> The strategy for the development of the Arctic zone of the Russian Federation and ensuring national security for the period until 2020, (approved by the President of the Russian Federation on February 8, 2013)

<sup>3</sup> For more details see: A. Tishkov. "Arctic vector" in conservation of terrestrial ecosystems and biodiversity // Arctic: Ecology and Economics No2 (6). 2012. P. 28

<sup>4</sup> Approved by the Decree of the Government of the Russian Federation of April 21, 2014 No. 366 / SZ RF. 2014. No. 18 (Part IV). Art. 2207

<sup>5</sup> The Russian Federation signed the Convention on Biological Diversity in 1992 and ratified it in 1995. See: Federal Law No. 16-FZ of February 17, 1995 "On Ratification of the Convention on Biological Diversity" // SZ RF. 2005. № 8. Art. 601.

<sup>6</sup> See: National Strategy for Biodiversity Conservation in Russia (adopted at the National Biodiversity Conservation Forum on June 5, 2001) (URL: <http://www.impb.ru/pdf/strategy.pdf>) (accessed on 10.11.2017)

<sup>7</sup> For more details see: Chernov Yu.I. Directions, status and prospects of Russian research on Arctic biological diversity. Vestnik RFBR, No 1 (35), March 2004. P. 5-36



of Arctic flora and fauna are ecosystems of tundra, polar deserts, valleys of northern rivers and marshes.

The particular sensitivity of biodiversity and ecosystems in the Arctic to the negative impact is also due to the fact that in a relatively small area contamination from other territories that come here with the Gulf Stream water streams and large northern rivers is accumulating here. A major role in this process is played by the global transfer of pollution by atmospheric fluxes. Due to severe climatic conditions, biocenotic processes in the Arctic region occur with low intensity, which determines the greater sensitivity and weak ability of Arctic ecosystems to self-repair. Thus, restoration after natural and anthropogenic impacts of disturbed soils, populations of vegetation and animals is relatively long, much longer than in territories with more favorable climatic conditions. The disappearance of one species or even a significant reduction leads to a dramatic restructuring of food chains and thereby changes the entire ecosystem<sup>8</sup>.

Recently, the level of economic development and economic activity in the Arctic region has increased significantly<sup>9</sup>. At the same time, the status of populations of many Arctic species of animals and plants, ecosystems and their territorial complexes can be characterized as critical. This problem should be solved at the state level, with particular attention to the problems of biodiversity conservation in the Arctic, should be given in the territories of economic activities intensification, since it is here that Arctic ecosystems are adversely affected, and this ultimately can lead to their complete destruction. Specialists note that due to the low stability and high vulnerability of the Arctic biota in the region, only generally accepted environmental measures are not fully applicable. A.A. Tishkov draws attention to some features of the protection of biological diversity and ecosystems in the Arctic. Thus, protected natural areas should have large areas to ensure the migration of animals and include, if possible, both land and sea. A patronage protection of rare species should be built not at the local but at the regional and even global levels (for example, with rare migratory species of waterfowl and waterbirds - by protecting nesting sites in the Arctic, flying in the taiga and steppes, wintering areas in the tropics and subtropics of Africa and Asia)<sup>10</sup>.

The natural ecosystems of the Arctic zone of the Russian Federation are affected by both natural and anthropogenic factors. One of the the most important natural factors is global climate change, which leads to a reduction in the ice cover. Among the anthropogenic factors, there are such factors as: pollution of the environment as a result of economic activities (including oil and gas production and transportation, as well as integrated industrial development of the Arctic territories); mechanical disturbance of soil and vegetation cover by vehicles, as well as due to non-compliance with traditional rates of reindeer grazing; poaching and unregulated use of bioresources; introduction of alien (adventitious species) into arctic ecosystems, which impedes the restoration of the original vegetation. Actively

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<sup>8</sup> See: National Strategy for Biodiversity Conservation in Russia. P. 40.

<sup>9</sup> Dudin M.N., Frolova E.E., Artemieva J.A., Kucherenko P.A., Mamedov A.A. Role of «green» logistics in providing ecological safety of arctic resources: social and economic aspect // International journal of applied business and economic research, 2016, vol.14, № 10, p. 7009-7010

<sup>10</sup> For more details see: A. Tishkov. *Ibht*. Pp. 29-30.



spreading and mastering new habitats, adventive species displaces aboriginal Arctic species, thereby leading to the degradation of natural ecosystems inherent in the region. Violation of the natural vegetation cover due to contamination and mechanical damage leads to a dysfunctional state of the wintering grounds for certain species of the Arctic fauna, as well as their migration routes. The processes of cryogenic soil erosion are significantly accelerated. The complex of negative anthropogenic factors has a very negative effect on the state of natural ecosystems as a whole, leads to their change, fragmentation, and in some cases to complete destruction.

However, the implementation of the political goals of our state in the sphere of ensuring environmental safety in the Arctic is currently difficult due to imperfect legal regulation in this area. At the legislative level, acts reflecting the regional specifics of the Arctic and ensuring the maximum effective protection of its natural systems have not been adopted. It is necessary to point out the need to revise from these positions the requirements on the regulation of the impact on ecosystems, the improvement of economic incentives for environmental protection measures, the establishment of special protection regimes for Arctic territories and water areas. The creation of an optimized system of specially protected Arctic natural areas for the conservation of intact and intact ecosystems could be of great importance for the conservation of Arctic biological diversity and ecosystems, and the transport and industrial infrastructure of the Arctic zone should be created taking into account their existence. I would like to note that at present the plans for the development of transport infrastructure in the Arctic are practically "Napoleonic." For effective development of the Arctic territories, it is required to organize logistical support for remote facilities using various means of transport. Thus, experts in this field suggest the creation of a system of international transport corridors and regional transport links between hard-to-reach near-Arctic populated areas. This project should be implemented with maximum sensitivity to the natural systems of the Arctic to any economic activity.

For the purpose of effective conservation of biological diversity and its components in the Arctic zone of the Russian Federation, first of all, it is necessary to create special environmental management and protection regimes, including environmental quality standards developed in view of the high vulnerability of natural ecosystems in the region, and then, based on them, standards of maximum permissible impacts. Much attention should be paid to improving the legal regulation of access of indigenous small peoples living in the Arctic zone to the implementation of traditional activities related to the use of wildlife and other biological resources. An important role in this process could be played by the creation of a special legislative act regulating reindeer breeding as one of the main activities of the indigenous population of the Arctic. Another direction in the development of legislation to protect the biological diversity of the Arctic should be the fight against the illegal use of objects of flora and fauna on its territory (including poaching), for which it is necessary to strengthen the corresponding measures of criminal and administrative responsibility. Certain steps in this direction have already been taken. So the polar bear, the main habitat of which is the Arctic, is included in the List of especially valuable wild animals and aquatic biological resources belonging to the species listed in the Red Book of the Russian Federation and / or protected by international treaties of the Russian Federation, for the purpos-



es of articles 226.1 and 258.1 of the Criminal Code Code of the Russian Federation<sup>11</sup> providing for more stringent sanctions.

It should be noted that, in accordance with the provisions of the Strategy for the development of the Arctic zone of the Russian Federation and ensuring national security for the period to 2020, the preservation and protection of the Arctic natural environment is one of the main objectives of the state policy of the Russian Federation in this region. Within the framework of the strategy, it is supposed to solve the problem of preserving the biological diversity of the Arctic flora and fauna, including by expanding the network of specially protected natural areas and water areas. As one of the measures undertaken within the framework of this program document, the reclamation of disturbed natural landscapes is expected.

In conclusion, I would like to stress once again that the goals of conservation of biological diversity and ecosystems in the Arctic should be, if not a priority over the goals of economic and economic development, but at least stand on a level with them, thereby ensuring sustainable development of the region.

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<sup>11</sup> Approved by Resolution of the Government of the Russian Federation of October 31, 2013 No. 978 / SZ RF. 2013. No. 45. Art. 5814