

## Development of protected areas of Transcarpathian region as a condition of sustainable regional development

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The article investigates the trends of protected areas in the Transcarpathian region, consistent part of which is the preservation and development, establishment of ecological networks of Carpathian region as a whole. There have been suggested measures of organizational and educational and environmental issues, which are aimed at improving environmental performance in all the areas of Transcarpathian region.

**Keywords** : sustainable development, protected areas, nature- reserve fund, the ecological network.

Кампов Н.С., Герцовська Н.О., Махлинець С.С. РОЗВИТОК ПРИРОДООХОРОННИХ ТЕРИТОРІЙ ЗАКАРПАТСЬКОЇ ОБЛАСТІ ЯК УМОВА СТАЛОГО РОЗВИТКУ РЕГІОНУ

В статті досліджено тенденції розвитку природоохоронних територій Закарпатської області, складовою якої є їх збереження і розвиток, формування екологічної мережі Карпатського регіону в цілому. Запропоновано заходи організаційного та освітньо-екологічного характеру, які спрямовані на вдосконалення природоохоронної діяльності в усіх районах Закарпатської області.

**Ключові слова:** сталий розвиток, природоохоронні території, природо-заповідний фонд, екологічна мережа.

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В статье исследованы тенденции развития природоохранных территорий Закарпатской области, составляющей которой является их сохранение и развитие, формирование экологической сети Карпатского региона в целом. Предложены мероприятия организационного и образовательно-экологического характера, которые направлены на совершенствование природоохранной деятельности во всех районах Закарпатской области.

**Ключевые слова:** устойчивое развитие, природоохранные территории, природо-заповедный фонд, экологическая сеть.

**Formulation of the problem.** Sustainable development is a programme that needs to change the process of economic development so that it guaranteed a basic level of quality of life for all people and protect ecosystems and communities that are just making life possible and worth living. The equilibrium and the balance in the long term according to the conceptual framework should be in the basis of the development of society, certain regions and particularly such complex inter-sectoral and inter-regional economy.

The strategy of sustainable development of the region is in directing efforts to preserve natural systems of protected areas to ensure their

functioning according to the laws of Ukraine and international law on the activities of protected areas and the objectives aimed at the use of biological and landscape diversity, sustainable development areas, balanced agriculture, forestry, management of water resources and river basins, transport, infrastructure, as well as environmental assessment, monitoring and more.

**Analysis of recent publications and research.** Problems of mechanisms of protected areas in the system of implementation of the state policy of sustainable social and economic development is the subject of constant discussion of domestic scientists. A significant contribution to solving some aspects of their development have

been made by G. P. Andreeva, M. P. Butko, O. A. Vorobyov, Ju. Ju. Hurbyk, A. Guslyakova, V. M. Dmytrenko, P. V. Zakharchenko, O. V. Kafarsky, G. M. Mediany, O. H. Rozmetova, N. V. Yatsuk, etc.

However, despite the importance and value of the research, systemic approaches to the definition of a clear concept of the mechanisms of governance of protected areas of Transcarpathian region based on the formation and use of recreational potential have been not sufficiently described.

The question of environmental protection and rational nature usage has now acquired special significance. Therefore, emphasis on the creation and expansion of protected areas that can prevent or reduce negative effects on the environment has been put.

The objectives of the study are to investigate the development of protected areas in the Carpathian region, to analyze their territorial changes, identify prospects of their development.

**Research of basic material.** The main aim of the national environmental policy is a significant improvement of the environment of Ukraine, creating ecological and economic prerequisites for its sustainable development. The stabilization of the environmental situation and improvement of the environment in the country need the large-scale measures in reducing human impact on natural landscapes and prevention of pollution; enhancement of biodiversity and natural ecosystems as well as gene pool of flora and fauna; ecological networks, the foundation of which is the territory of natural reserve fund of Ukraine.

To implement the state policy of development of natural reserve fund of Ukraine in the Transcarpathian region there has been developed a "Programme of perspective development of natural reserves and ecological network in the Carpathian region for 2006-2020." The Programme is providing conditions for preservation and development of territories and objects of natural reserve fund (hereinafter – NRF) as a national heritage, further development of scientifically-based environmental network in 2020 based on the recognition of its social, economic and environmental importance for sustainable development of the region [11].

Programme activities are aimed at preserving the unique and typical landscapes and other natural complexes, biological diversity, including the gene pool of flora and fauna, increasing the role of protected areas in the development of scientific basis of environmental management and

environmental protection, conservation and restoration of water bodies, wetlands, development of natural sciences, environmental monitoring implementation of environmental, ecological and patriotic education of citizens.

The program provides for the expansion of existing and new environmental protection facilities both of national and local importance, namely:

- creation of new protected areas and territories and the expansion of existing protected areas: national parks "Synevyr", 3 thousand hectares (2006-2008); Carpathian Biosphere Reserve, 10 thousand hectares (2006-2007); Uzhanskyi National Park (NP), 10 thousand hectares (2006-2009).

- preparation of the materials for the creation of protected areas of national importance: Park "Enchanted Land" – 12.5 thousand hectares (2006-2007);

- preparation of the materials for reservation of protected areas of national importance: NP "Zhdymyr" – up to 21.6 thousand hectares (2006-2010); NP "Zhdeniyevskyy" – up to 10,0 thousand hectares (2015-2020); NP "Transcarpathian Beskid" – up to 40.0 thousand hectares; creating of Regional Landscape Park "Prytysyanska" – up to 20.0 thousand hectares (2006-2009).

- expanding a network of protected areas and areas of local importance:

- in Mukachevo district: preparation of the proposals on the creation of seasonal ornithological local reserves (2006-2010);

- in Beregovo district: preparation of the proposals for the creation of local reserves, including hydrological reserves, "Berezhske reservoir" (the area of 46.0 hectares), "Sand pit" (the area of 25.0 hectares), "Dydyovske reservoir" (the area of 75.0 hectares), "Moshnov" (the area of 15.0 hectares);

- in Mizhhiryya district: hydrological reserves – 1463 hectares, ichthyological reserves – 1,134 hectares; preparation of the proposals on the creation of new local reserves (2010-2020);

- in Volovets district: the creation of forest reserve of local importance "Temnatyk" in the area of 1215 hectares;

- in Velykobereznianskyi district: the creation of forest reserve "Solyanskyy" and "Naked Obuch", a total area of 37 hectares; botanical reserve "Borsuchyy" on the area of 1.0 hectares; hydrological natural monuments "Scherbanka" on the area of 1.5 hectares (2006-2007);

- in Vynohradiv district: the creation of natural monuments of local importance in the tract

"Great Forest" – 10.0 hectares; botanical reserve of local importance "Dombosh" – 4.0 hectares (2006-2007);

in Uzhgorod and Uzhgorod district: the creation of the zoological reserve of local importance on the river Uzh, preparation of the proposals on the creation of seasonal ornithological local reserves (2006-2009);

in Khust district: the creation of geological nature monument of local importance "Rocks", on the area of 51 hectares (2005-2006.)

in Svalyava district: exploring the possibility to create within Ploskivska, Polyanska, Solochynska, Golubinska, Suskivska village councils the regional landscape park on an area of 6.5 hectares (2006-2010);

in Perechyn district: the preparation of the proposals for creating the protected areas of local importance (2006-2010);

in Tyachiv district: the preparation of the proposals to expand the areas of natural monuments of local importance "Dubrova" and "Mocharky", the creation of the botanical reserve of local significance near the village of Neresnytsia on an area of 42 hectares, and the forest reserve of local importance near the village R.Pole on the area of 118 hectares (2006-2007) [11].

The program also provides for educational and environmental activities, namely:

- construction of the Museum of Nature Uzhanskyi National Park (2006-2010), the creation of eco-educational center "School in wild-wood" at the Novo-Stuzhytskyi Natural Reserve Scientific Department in Uzhansky NP (2006-2010) at the expense of state budget (Ministry of Environmental Protection of Ukraine);

- restoration of the museum forest and rafting on the Black River in the Park "Synevyr" (2006 – 2009), the expositions of environmental-education center "Museum of narcissus" and "Center of Europe" Carpathian Biosphere Reserve (2006-2008), the creation of eco-education center "Beech Wildwoods" in Uholskyi Natural Reserve Scientific Department of Carpathian Biosphere Reserve (2006-2008) at the expense of local budgets and other sources;

- programme development on the usage of reserved areas for youth education (2006 – 2008). Responsible for their creation are the Department of Education and Culture of the regional administration jointly with Uzhansky NP, NP "Synevyr", State Department of Ecology and Natural Resources of Transcarpathian regional department of forestry, Uzhgorod National University.

Table 1

**Dynamics of the structure of natural reserve fund of Transcarpathian region**

Categories of areas and objects of natural reserve fund	2007		2016		Change of the territory, hectares
	Number of units	Area, hectares	Number of units	Area, hectares	
Biosphere reserves	1	53630,0	1	58035,8	+ 4405,8
National parks	2	79559,3	3	87964,3	+ 8405
Regional landscape parks	1	6100	2	14961,9558	+ 8861,956
Wildlife sanctuaries of state importance	19	9218,0*	19	9218,0*	0
Wildlife sanctuaries of local importance	41	3373,7*	47	4810,8159*	+ 1437,1159
Natural monuments of state importance	9	192,0*	9	192,0*	0
Natural monuments of local importance	328	387,85*	329	387,8516*	+ 0,0016
Reserve natural landmarks	9	881,3*	9	881,3*	0
Botanical gardens of state importance	1	86,414	1	86,414	0
Dendrological parks of local level	4	37,9	4	37,9	0
Park monuments of landscape architecture of state importance	1	38	1	38,0	0
Park monuments of landscape architecture of local importance	31	130,46	31	134,712	+ 4,252
<b>Total:</b>	<b>447</b>	<b>153634,924*</b>	<b>456</b>	<b>176749,0493*</b>	<b>23114,13</b>

\* The area of the nature reserve fund without dubbing the areas Note.

*Developed by the authors based on source [1]*

According to the statement of changes of territories and objects of natural reserve fund of Ukraine located in the region at the beginning of 2012 (Table 1) [10].

The territory Carpathian Biosphere Reserve has been amended (increased by 4,405.8 hectares) according to the Decree of the President of Ukraine on 14.01.2010;

National Park "Enchanted Land" on the area of 6101.0 hectares has been created (Decree of the President of Ukraine on 21.05.2009);

The area of Regional Landscape Park "Synyak" has been increased to 4631.2958 hectares (Regional Council decision on 26 May 2011);

Regional Landscape Park "Prytysyanska" on the area of 10,330.66 hectares has been created (decision of the Regional Council on 07.08.2009);

"Temnatyk" Forest (decision of the Regional Council on 24.04.2009);

"Poplar" Forest on the area of 74.4159 hectares (Regional Council decision on 12.08.2011);

"Arдова", a botanical reserve on the area of 9.0 hectares (decision of the Regional Council on 08.07.2010);

"Silash", a botanical reserve on the area of 75.5 hectares (decision of the Regional Council on 08.07.2010);

"Ehresh", a botanical reserve on the area of 37.4 hectares (decision of the Regional Council on 08.07.2010).

"Zhornyna", temporary entomological reserve (for 15 years), an area of 9.8 hectares (Regional Council decision of 12 August 2011);

"Masaryk Beech", a botanical nature monument, an area of 0.0016 hectares (Regional Council decision of 12 August 2011).

Therefore, during 2006-2011 the area of nature reserve fund of Transcarpathian region has increased by 176749.0493 hectares. However, some planned projects were not implemented, because much of them were to be implemented at the expense of local budgets and other investments.

Based on the goals and objectives of the Programme of all the district administration carry out an analysis of protected areas, determine their development priorities, and identify problems and solutions.

Based on the existing protected areas within each region (Table 2) there were developed prospects not only to expand the territories, but also to effectively use them.

Transcarpathian region also represents a number of geo-environmental interests for cross-border cooperation.

Table 2  
**Distribution of protected areas in the districts of Transcarpathian region [2-9]**

District	Area of reserved territories, hectares	Area of park monuments of landscape architecture, hectares
Berehovo	757,72	26,2
Velykyi Bereznyi	39401,66	5,3
Volovets	2719,4	0,8
Vynohradovo	6276,81	12,7
Irshava	9170,51	-
Mizhhirya	44492,4	2,5
Mukachevo	1144,67	5,5
Rakhiv	40367,41	7,4
Tiachiv	18023,11	
Uzhhorod	6633,57	25

\* Note: compiled by the authors according to the reports on the implementation of environmental protection measures "Project of Ecological Network Development of Transcarpathian region (continuing operations)".

The presence of unique, sometimes common in Europe, mostly natural landscapes as well as rich biological and landscape diversity with a high proportion of protected areas (13.4% of the area) is significant nature reserve, both for the region, the country and the world.

As a part of the strategy of the development of the ecological network in all districts of the Transcarpathian region there were developed the scheme of ecological network and the main task to ensure it.

**Conclusions.** The main goal of the current stage of national policy is a significant improvement of the environment of Ukraine, creating ecological and economic prerequisites for sustainable development. The stabilization of the ecological situation and environmental sanitation in the country need large-scale measures aimed at reducing human impact on natural landscapes and preventing pollution. In the secured sustainable development of the state, creating healthy natural living environment, preservation of natural and cultivated landscapes an important role have been played by natural protected areas and objects that are a basis for expansion of the ecological network of Ukraine and the Single Pan-European Ecological Network. Creation of ecological network, the basis of which is the territory of the natural reserve fund of the country, is a key element of practical implementation of economic and ecological system of environmental management.

Having examined the dynamics of protected areas in the Carpathian region, we have noted

that in general it is positive, though questions remain regarding the establishment of ecological networks that best meet the requirements of sustainable development and conditions of Transcarpathia. Environmental Network will bring together all the objects of nature reserve fund

and ensure the development of traditional forms of management of Transcarpathian region. In extremely severe environmental, economic and social conditions of the land it is the most realistic and cost-effective transition to the sustainable development.

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