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*Ljubomyr Tsaryk, Andriy Kuzyshyn, Petro Tsaryk, Nadiia Stetsko, Yaroslav Marunyak, Inna Poplavska, Mariana Hinzula*

## The regional formation of recreation and environmental protection systems of Ukraine

### Abstract

The article discusses the process of regional natural and recreational systems formation, methodological basis for the creation of them, which is the concept of ecological networks (environmental systems) and regional recreational systems (RRS). Analyzed in the article is the formation of five regional conservation and recreation systems: western, northeastern, central, eastern and southern, with developed environmental and recreational infrastructure. It is considered in the context of a network of national parks (NNP) and the Regional Landscape Parks (RLP) development as multifunctional environmental and recreational areas, the creation of which is directed to meet the growing needs of the population in a natural habitat. The representativeness of Ukrainian landscape areas network of NPP and RLP is reviewed. Their highest density was observed in the Ukrainian Carpathians and zone of broadleaf forests, where one park occurs per 3.4 and 4.9 thousand square kilometers respectively. The density of the NNP is the lowest in forest-steppe, coniferous-broadleaf forest and steppe zones, with one park per 19.10; 18.29; 18.31 thousand square kilometers respectively. The combined development of local recreation and environmental systems causes the creation of eco-stable framework that will ensure the conservation, anthropological and recreational functions of geosystems in Ukraine.

**Key words:** national parks; nature management; regional environmental protection systems; regional environmental protective and recreational systems; regional landscape parks; regional recreational systems.

### Relevance of the research

There are complicated processes of economic complex transformation because of stagnation phenomena in the economic sphere, as well as positive dynamic trends in the environmental and recreation spheres. This is due to the need to form new spatial and functional relationships in both production and social spheres, restructuring of the industries and reorientation on its own natural resource base.

Trends in environmental and recreational relations appear in the formation of regional natural and recreational systems, methodological basis for the creation

of which is the concept of ecological networks (environmental systems) and regional recreational systems (RRS).

The formation of regional environmental and recreational systems was considered in the context of a network of national parks (NNP) and the Regional Landscape Parks (RLP) as multifunctional in Environmental Protection and recreational areas, the creation of which is directed to meet the growing needs of the population in a natural habitat.

## The main material

In three decades of formation period of national parks network (NNP) Ukraine demonstrates dynamic changes of multifunctional preserves and recreation category. During the 1980s only 3 NNP were created, during the 1990s – 8 NNP, during the first decade of the 21st century 33 national parks were formed. As of Jan 1, 2014 there were 48 national parks with a total area of 1,221,805 ha, which covers 2.1% of Ukraine, and 77 RLP with a total area of 768,980 hectares, representing 1.27% of the territory of Ukraine. National natural areas and regional landscape parks constitute about 50% of the natural reserve fund in Ukraine.

The largest number of national parks is situated in the following regions: Ivano-Frankivsk (5) Chernihiv (3), Volyn (3), Kherson (3), Lviv (3), Kharkiv (3), Chernivtsi (3), Transcarpathian (3) (pic.1). There are no national parks in Zhytomyr, Kirovohrad and Dnipropetrovsk. The largest number of RLP are found in the following administrative areas: Crimea (15), Kharkiv (7), Donetsk (6), Kiev region (6), Mykolaiv (5), Poltava (5). There are no RLP in Volyn, Zhytomyr, and Kherson.

This shows the central role of multifunctional environmental protection and recreational groups at the present stage of building protective network.

Recreational and nature reserve management today should be considered as ecostabilising types of nature, whose share in the spatial structure of regional economic systems increases significantly and provided the national program is implemented, the national ecological network will be 30%. Together with the forest, water and meadow-pasture agricultural nature management, their share of the optimal spatial aspect would be up to 50–60% of the total area that would enable constructive total balance of nature management in the region.

Conceptual approaches to the landscape and ecological area optimization were developed by M.D.Hrodzynskyi during 1993–2005. They involve a series of phased approaches. In particular – the definition of the landscape and environmental criteria and priorities of regional economic systems; optimization of ratio between economic and natural lands; optimization of biocentral network structure of landscape system, which is natural canvas for prospective ecological networks.

Recreational and nature management conservation in the face of complicated ecological and geographical situation in Ukraine has nowadays a priority character. Their development is confined to the spatial structures of regional ecological networks. Traditional recreational regions of Ukraine are – Carpathian, Black Sea, Azov Sea, Crimea. These are the crucial types of environmental management in the development of economic complex. In such regions as Podillia, Western Polissia, Eastern Polissia the development is in second place right after agriculture and forestry

management. In other regions of Ukraine development of reservation and recreational environmental management, takes second place, though, but it is important for balanced regional nature management.

A number of features appears when we consider the spatial placement of NNP and RLP. Geographical restriction of NNP and RLP and their functional features make it possible to distinguish within territory of Ukraine several regional environmental and recreational systems (RERS).

**Tab. 1.** The network of national parks in Ukraine.

№	Title of NPP	Year of foundation	Administrative-territorial restriction	Physical-geographical restriction	Square, ha
1	Carpathian	1980	Ivano-Frankivsk region	Ukrainian Carpathians	50 495
2	Shatskyi	1983	Volyn region	Poliskyi region	48 977
3	Synevir	1989	Transcarpathian region	Ukrainian Carpathians	40 400
4	Azov-Sivash	1993	Kherson region, Crimea	Southern steppe subzone	57 400
5	Vyzhnytsky	1995	Chernivtsi region	Ukrainian Carpathians	7 928
6	Podilski Tovtry	1996	Khmelnysk region	Western Ukrainian region	261 316
7	Holy Mountains	1997	Donetsk region	Northern steppe subzone	40 589
8	Yavorivskyi	1998	Lviv region	Western Ukrainian region	7 108
9	Desna-Starogutskiy	1999	Sumy region	Poliskyi region	16 215
10	Skolevski Beskydy	1999	Lviv region	Ukrainian Carpathians	35 261
11	Uzhansky	1999	Transcarpathian region	Ukrainian Carpathians	39 159
12	Hutsulshchyna	2002	Ivano-Frankivsk region	Ukrainian Carpathians	32 271
13	Galytskyi	2004	Ivano-Frankivsk region	Western Ukrainian region	14 685
14	Homilshanski forests	2004	Kharkiv region	Southern steppe subzone	14 315
15	Ichnyansky	2004	Chernihiv region	Forest-steppe zone	9 666
16	Great meadow	2006	Zaporizhia region	Southern steppe subzone	16 756
17	Mezynskyi	2006	Chernihiv region	Poliskyi region	31 035
18	Holosiyivsky	2007	c. Kyiv	Forest-steppe zone	4 521
19	Prypyat-Stohid	2007	Volyn region	Poliskyi region	39 216
20	Down Dnister	2008	Odesa region	Middle steppe subzone	21 311
21	Enchanted land	2009	Transcarpathian region	Ukrainian Carpathians	6 101
22	Zalissia	2009	Chernihiv region	Poliskyi region	14 836
23	Belozerskyi	2009	Kyiv, Cherkasy region	Forest-steppe zone	7 014
24	Slobozhanskyi	2009	Kharkiv region	Forest-steppe zone	5 244
25	Pyryatynskyi	2009	Poltava region	Forest-steppe zone	12 028
26	Dzharylghachskyi	2009	Kherson region	Southern steppe subzone	10 000
27	Dvorichansky	2009	Kharkiv region	Forest-steppe zone	3 131
28	Cheremoskyi	2009	Chernivtsi region	Ukrainian Carpathians	7 117
29	Siversko-Donetskyi	2009	Luhansk region	Northern steppe subzone	7 007
30	Dermansko-Ostrozkyi	2009	Rivne region	Western Ukrainian region	1 648
31	Kremenets mountains	2009	Ternopil region	Western Ukrainian region	6 951
32	The charming harbor	2009	Crimea	Crimea steppe region	10 900

33	Nyzhnosulskyi	2009	Cherkasy, Poltava regions	Forest-steppe zone	18 635
34	North Podillia	2009	Lviv region	Western Ukrainian region	15 588
35	Biloberezhzhia Sviatoslav	2009	Mykolaiv region	Southern steppe subzone	35 223
36	Karmelyk Podillia	2009	Vinnitsia region	Forest-steppe zone	16 518
37	Tuzly Lagoons	2010	Odesa region	Middle steppe subzone	5 244
38	Khotyn	2010	Chernivtsi region	Western Ukrainian region	9 446
39	Verhovynskyi	2010	Ivano-Frankivsk region	Ukrainian Carpathians	12 023
40	Pryazovskyi	2010	Zaporizhia region	Southern steppe subzone	78 127
41	Oleshkivski sands	2010	Kherson region	Southern steppe subzone	8 020
42	Tsumanska Pushcha	2010	Volyn region	Western Ukrainian region	33 475
43	Meotyda	2010	Donetsk region	Northern steppe subzone	20 720
44	Blue Mountain	2010	Ivano-Frankivsk region	Ukrainian Carpathians	10 866
45	Dnister canyon	2010	Ternopil region	Western Ukrainian region	10 830
46	Buzkyi Gard	2009	Mykolaiv region	Northern steppe subzone	6 138
47	Hetman	2009	Sumy region	Forest-steppe zone	23 360
48	Small Polissia	2013	Khmelnysk region	Mixed forest zone	5 999
Ukraine in general					1 221 805

Source: Own study

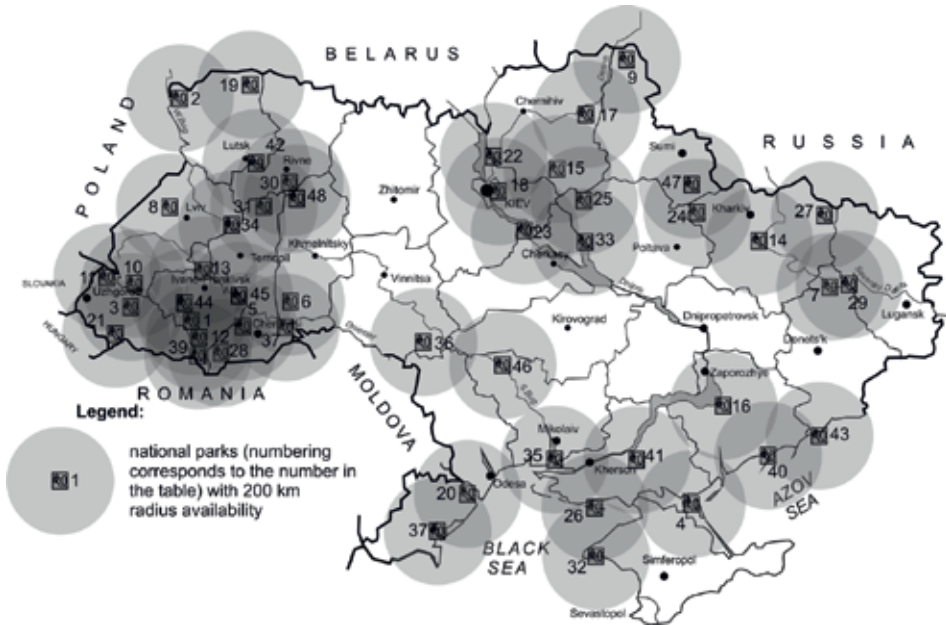
North-western environmental and recreational system consists of 8 administrative regions which include 22 NNP and 18 RLP. According to the amount of reservation factors of natural systems, quality and variety of natural recreational resources, preservation of ethnic and cultural traditions and customs, and unique geographic location it can be considered the most promising RERS in Ukraine. It is focused on more than 5.2 million local city residents, more than 5 million village residents, a large number of tourists and visitors from other regions of Ukraine and abroad. One of the main problems of prospective development is the absence of a balanced approach to using natural resources and as a result complication of ecological and geographical situation ensues.

In northeastern part of Ukraine the formation of RERS is based on the functioning of 9 NNP and 13 RLP. They are situated within Kyiv, Chernigiv, northern Sumy and Poltava regions. What makes it stand out is the high degree of natural unique landscapes, convenience of transport, geographical position and proximity of the capital center. It is focused on 5 million city residents of Kyiv region with Kyiv, Chernigiv, northern Sumy regions and about 2 million village residents. Radioecological situation of the territory is negative reinforcement for further investment and comprehensive development of the region.

Eastern RERS is formed in an industrial region of Ukraine on the territory of Kharkiv, the northern part of Donetsk, Luhansk, southern Sumy and eastern part of Poltava regions. There are 6 NNP and 14 RPL concentrated there. The characteristic feature is a low level of natural landscapes and their preservation together with the highest potential in Ukraine urborekreativ. Regional landscape parks situated not far from urban ecosystems have been developed here. Its further development is

associated with the need of costly environmental investment measures to support the general ecological status of humanized landscapes.

Southern RERS has a significant potential in natural recreational resources. It can be characterized by a developed recreational infrastructure, which includes 10 national parks and 23 RLP. Some problem factors of its development are general deterioration of ecological and geographic situation, which is a result of the growing pollution of the Black Sea and Azov Sea, degradation of natural systems coastal landscapes due to breaking rules of recreation on natural systems. Southern region is a traditional place for summer vacation for people from all Ukrainian regions and also for people from such countries as Russia, Belarus and Moldova.



**Fig. 1.** Network of national parks of Ukraine (radius shows the availability of weekend trips)

Source: Own study

There is also the establishment of Central Ukrainian RERS, which includes Vinnytsia, Cherkasy, Kirovohrad, Dnipropetrovsk and northern Mykolaiv regions. Within this borders there are 3 NNP and 10 RLP. There is a low level of natural landscapes preservation, the environmental measures introduction together with available natural recreational resources of regional significance. One of the most relevant problems of the region is unbalanced land use. The creation of some national parks designed during the 1980s is planned. These are Central Podillia NNP and “Cherkasy boron”, as well as “Cold ravine” and Orilskoho.

As for the representativeness of landscape zones network in NNP and RLP, their highest density is noted in the Ukrainian Carpathians and the zone of broadleaf forests, where one park occurs per 3.4 and 4.9 thousand square kilometers respectively. The density of the NNP is the lowest in forest-steppe, coniferous-broadleaf forest

and steppe zones, with one park per 19.10; 18.29; 18.31 thousand square kilometers respectively. The highest density of national parks is found in forest broadleaf are (8.25%) due to the area of “Podilski Tovtry”. The lowest is in the forest-steppe zone (0.52%) because of the existence of small national parks (List 2).

The final stage of national ecological network formation is currently in progress in Ukraine. New NNP are added as national ones, while RLP – as regional elements of prospective ecological networks. This would facilitate the integration of environmental and recreational networks into a unified one.

**Tab. 2.** National parks within the landscape regions of Ukraine

Landscape regions	LR square (thousand km <sup>2</sup> )	Share of natural lands, %	Density of NNP (quantity /thousand km <sup>2</sup> )	Share of NNP square, %	Coefficient of anthropogenic landscape transformation, C <sub>at</sub>
Mixed forest zone	91,486	65,9	1/18,297	1,64	5,10
Broadleaf forest zone	43,767	27,7	1/4,863	8,25	6,93
Forest-steppe zone	190,556	22,2	1/19,055	0,52	7,22
Steppe zone	238,066	21,2	1/18,312	1,39	7,30
Ukrainian Carpathians	34,054	62,4	1/3,405	7,07	5,01
Mountain Crimea	5,824	42,5	–	–	4,78
Ukraine in general	603,745	30,9	1/12,845	1,96	6,86

Source: Own study

The process of extensive NNP and RLP formation takes place in Ukraine. It is focused on preservation of natural systems and the needs of internal and international tourism and recreation, including health, cognitive and educational areas. The formation of five regional environmental and recreational systems (RERS) – north-western, northeastern, central, eastern and southern is noticeable in the spatial aspect. Combined development of territorial recreational and environmental systems is the guarantor of creation of an eco-stable framework that will ensure the conservation, maintenance and recreational functions of Ukrainian ecosystems.

## Conclusion

Formation of RERS in Ukraine is the result of the natural reserves and recreational nature management development. Its role and functions are particularly relevant to the process of sustainable environmental management.

These spatial and functional structures are part of national and regional ecological networks that provide favorable natural habitat for the population.

RERS' territories fall under a special regime of nature management (about 30% of the territory) within ecological networks, and therefore contribute to the formation of eco-safe environment.

RERS contribute to balancing of the ecological equilibrium of regional geosystems, localization of techno genesis processes, the restoration of relationships in the environmental area frame, preventing threats to different vital processes.

Within the territory of Ukraine the formation of five regional recreation and environmental systems is taking place: western, northeastern, central, eastern and southern with developed environmental and recreational infrastructure. The combined development of local recreational and environmental systems is a guarantee of creating an eco-stable framework that will ensure the conservation, anthropological and recreational functions of geosystems in Ukraine.

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**Biographical note of author:** he has been working at the Volodymyr Hnatiuk National Pedagogical University of Ternopil since 1982. He has been chef master of geoecology and ecological disciplines teaching methods Department since 2000. In 2010 he defended his PhD degree on the topic Geographical principles of forming and developing the regional nature protection systems (conceptual approaches, practical realization). During his academic and pedagogical practice he published individually and in collaboration more than 250 academic and methodical publications. These are 6 monographs, 7 textbooks for General and High School. His research focuses on: environmental protection, eco-geographical, landscape and ecological, ecoeducational directions.



Ljubomyr Tsaryk, Professor  
Department of Geocology and Ecological Disciplines Teaching Methods  
Ternopil V. Hnatiuk National  
Pedagogical University  
tsarykl@ukr.net

**Biographical note of author:** he has been working at the Volodymyr Hnatiuk National Pedagogical University of Ternopil since 1999. He started his career as the senior laboratory assistant (1999–2000), then he worked as the assistant (2000–2004) and finally became a professor (2004) of the cathedra (department) of Geography of Ukraine and tourism. In 1999 he defended his PhD degree on the topic “Scientific and geographical management basics of regional social and economic systems (for e.g. Ternopil region)”. During his academic and pedagogical practice he published individually and in collaboration more than 110 academic and methodical publications. These are 7 textbooks for General and High School, 8 methodical elaborations, 2 electronic methodical elaborations for General School, 3 map-making pieces, 55 academic articles. He also took part in 50 academic and methodical conferences, seminars and congresses of national and international level. Mr. Kuzyshyn is a member of Ukrainian geographical Association and Scientific Association named after Taras Shevchenko. He is also a member of the Specialized Scientific Council for defense of degrees in Economic and Social Geography. His research focuses on: geospatial features of social and political spheres of Ukraine, problems of regional (economic) geography of Ukraine, history of domestic tourism, special features of international tourism

Andriy Kuzyshyn, Associate Professor  
Department of Geography Ukraine and Tourism  
Ternopil V. Hnatiuk National Pedagogical University  
kuzyszyn\_a@ukr.net

**Biographical note of author:** he has been working at the Volodymyr Hnatiuk National Pedagogical University of Ternopil since 1999. He started his career as the senior laboratory assistant (1999–2004), then he worked as the assistant (2004–2008) and finally became a professor (2008) of the cathedra (department) of Geography of Ukraine and tourism. In 2005 he defended his PhD degree on the topic Regional ecological network: geographical aspects of formation and development (on materials of the Ternopil region). During his academic and pedagogical practice he published individually and in collaboration more than 130 academic and methodical publications. These are 5 textbooks for General and High School, 5 methodical elaborations, more 20 map-making pieces, 50 academic articles. He also took part in 50 academic and methodical conferences, seminars and congresses of national and international level. Mr. Tsaryk is a member of Ukrainian geographical Association and Scientific Association named after Taras Shevchenko. His research focuses on: recreation tourism, rural and green tourism, problems of econet, problems of nature conservations

Petro Tsaryk, Associate Professor  
Department of Geography Ukraine and Tourism  
Ternopil V. Hnatiuk National Pedagogical University  
pitertsaryk@ukr.net

**Biographical note of author:** she has been working at Pedagogical University named after V. Gnatyuk since 1999. She began her career as a senior laboratory assistant (1992–1999) and then worked as an assistant (2000–2004). In 2004 she became a Professor at Geo-ecology and Environmental Sciences Teaching Methods Department. In 1999 she defended her doctoral thesis on “Socio-geographic research of territorial recreation systems (in Ternopil region)”. During her scientific and pedagogical practice she published individually and in cooperation more than



70 scientific and methodical publications. Among them there are 7 scientific manuals. She is a co-author of three textbooks for students majoring in Ecology, of 3 electronic teaching materials for students of Ecology and Geography and of 60 scientific articles. She participated in 40 scientific and methodical conferences, seminars and conferences at national and international level and took part in research work with state funding. Stetsko Nadiia is a member of Ukrainian Geographical Society named after Taras Shevchenko. Her research focuses on: geospatial features of social and environmental fields of Ukraine, problems of regional development of recreational activities, tourism in the context of international vision and functionality of protected objects in recreational activities.

Nadiia Stetsko, Associate Professor  
 Department of Geography Ukraine and Tourism  
 Ternopil V. Hnatiuk National Pedagogical University  
 stetzko@gmail.com

**Biographical note of author:** he has been working at the Volodymyr Hnatiuk National Pedagogical University of Ternopil since 1986. He started his career as the assistant (1986–1992), since 1992 he worked as the assistant of professor of the department of Geography of Ukraine and tourism. In 1997 he defended his Ph D degree on the topic “Water-resource potential of the Ternopil District and the problems of its utilization (socio-economic, geographical study)”. During his academic and pedagogical practice he published individually and in collaboration more than 170 academic and methodical publications. These are 12 text books for General and High School, 158 academic articles. He also took part in 56 academic and methodical conferences, seminars and congresses of national and international level. Mr. Marynyak is a member of Ukrainian geographical Association and Scientific Association named after Taras Shevchenko. His research focuses on: theoretical and methodological problems of geography of tourism, statistics methods in tourism, problems of hydrological resources and environmental protection, thematical cartography, ethnic geography and the history of geography.

Yaroslav Marunyak, Associate Professor  
 Department of Geography of Ukraine and Tourism  
 Ternopil V. Hnatiuk National Pedagogical University  
 Marynyak\_y@ukr.net

**Biographical note of author:** she has been working at the Volodymyr Hnatiuk National Pedagogical University of Ternopil since 2007. He started her career as the assistant (2007–2014) and finally became a professor (2014) of the cathedra (department) of Geography of Ukraine and tourism. In 2011 he defended his PhD degree on the topic The territorial organization of hotel maintenance in Ukraine. During his academic and pedagogical practice he published individually and in collaboration more than 40 academic and methodical publications. Ms. Poplavska is a member of Ukrainian geographical Association and Scientific Association named after Taras Shevchenko and Ukrainian Geographic Society. His research focuses on: legal regulation of of tourism, economy of tourism enterprises, communication management, hotel industry.

Inna Poplavska, Associate Professor  
 Department of Geography Ukraine and Tourism  
 Ternopil V. Hnatiuk National Pedagogical University  
 kuzyszyn\_a@ukr.net

**Biographical note of author:** she has been working at the Volodymyr Hnatiuk National Pedagogical University of Ternopil since 2011. She started career as the assistant (2010–2011) of the cathedra Ekology Kamyanskyi Podilsky Ivan Ohienko National University and then worked as the assistant of the cathedra (department) Geoecology and methods of teaching environmental sciences Volodymyr Hnatiuk National Pedagogical University of Ternopil (2011–2016). In 2015 she

defended his PhD degree on the topic “Regional ecological and geographical analysis of industrial environmental management (for e.g. Ternopil region)”. During his academic and pedagogical practice she published individually and in collaboration more than 60 academic and methodical publications. These are 6 methodical elaborations, 4 electronic methodical elaborations for High School, 25 academic articles. She also took part in 32 academic and methodical conferences, seminars and congresses of national and international level. Ms. Hinzula is a member of Ukrainian geographical Association and Scientific Association named after Taras Shevchenko (since 2012). His research focuses on: geo-environmental aspects and features of Ternopil region, research of type environmental consciousness students.

Mariana Hinzula, Assistant  
Department of Geoecology and Methods Of Teaching Environmental Sciences  
Ternopil V. Hnatiuk National Pedagogical University  
hinzula@gmail.com