

Journal of Geography, Politics and Society

2016, 6(4), 45–51

DOI 10.4467/24512249JG.16.027.5814

PROSPECTS OF THE KARST-SPELEOLOGICAL NATIONAL PARK “PODILLIA SPELEOREGION” ESTABLISHMENT AND OPERATION

Anna Khovalko

Tourism Department, Faculty of Geography, Ivan Franko National University of Lviv, Doroshenko 41, 79000 Lviv, Ukraine,
e-mail: anna.khovalko@gmail.com

Citation

Kovalko A., 2016, Prospects of the karst-speleological national park “Podillia Speleoregion” establishment and operation, *Journal of Geography, Politics and Society*, 6(4), 45–51.

Abstract

The article analyses the present speleological resources on the territory of Ukraine. Within the boundaries of Podillia speleoregion zonation has been performed in order to improve the organizational and administrative control of its tourist recreational reclamation. The relevance of Podillia speleoregion establishment in the structure of national park has been proposed as to adjust and to monitor the whole recreational activity on its territory. The purpose of such park establishment and main dimensions of its activity have been specified. Implementation of proposed ecologically directed actions will allow to support ecological survival of caves upon the controlled intensity of recreational tourist flows.

Key words

karst caves, national park, „Podillia Speleoregion”, tourist recreational zonation, tourist recreational caves usage, improvement of organizational and administrative control.

1. Introduction

Podillia with the adjacent territories where the largest Ukrainian and world gypsum caves are located has not only a prospect, but even today's ability for the quality enhancement of the recreational potential. However, implementation of this objective is associated with the number of challenges, primarily caused by the lack of scientific reasoning of the capacity as well as attractiveness potential of particular cave systems, their aesthetic, educational and historical value, safety, etc.

Such achievements are impossible without the provisions and measures development aimed at

preservation of the unique cave formations against the background of prospective enhancement of the tourist and recreational exploitation rate thereof. Keeping the balance between these types of activity is one of the major objectives for the entire Podillia speleoregion. It is necessary to reform the environmental management system through the introduction of new regulatory and financial and economic mechanisms of recreational use and reproduction of the natural resources of this speleoregion, considering priority environmental requirements and standards.

The purpose of the study is to develop the basic theoretical and methodological and practical provisions with respect to the ensuring of preservation and sustainable use of the unique Podillia karst caves by means of the karst-speleological national park "Podillia Speleoregion" establishment. Such purpose anticipates a number of objectives:

- reasoning of capabilities for the recreational and tourist traffic significant increase within the Podillia speleoregion;
- for this purpose, differentiation of the speleoregion in order to ensure more reasonable allocation of funds and other resources;
- provision of the relevant research information to the administration (at the local and regional levels), proving the existing prospects of the recreational and tourist reorientation of the region's specialty;
- reasoning of the regional infrastructure development prospects, as differentiated based on proposed respective zoning;
- provision of scientifically justified recommendations concerning the preservation of the unique cave systems of the Podillia speleoregion in the context of the tourist and recreational traffic increase;
- provision of scientific basis for the speleological activity development to the existing speleoclubs of Ukraine;
- reasoning of the study comprehension and use of the particular cave systems as well as the Podillia speleoregion in the whole.

Achievement of the purpose set will be possible only if there are clearly defined methods of the study. First of all, these are the methods of the tourist potential determination. Assessment of the speleoregion tourist potential shall be appropriate if conducted according to the plan as follows:

- availability of the attractive sites of natural and historical legacy: specifically caves, as well as monasteries, village churches, archaeological monuments, historic battlefields, historic sites (associated with interesting historical events), preserved architectural centres of villages and other settlements;
- availability of the unique natural sites among the caves (Kryshtaleva and Mlynky caves) as well as the sites associated with the cultural landscape: village parks, monastery parks, old mills and dams on the rivers, ancient water routes, old lanes and individual trees;
- beautiful cave lakes; attractive areas; unique outcrops; springs, etc.;
- areas which it is practicable to use for the extreme tourism;

- availability of locations chosen by the recreationists for their independent research: areas with speleothems, places of recreation, areas around the underground lakes.

Specifically, the caves are assessed by their potentials: aesthetic, tourist capacity, educational, safety, etc. Each provision should be assessed using the score system approved through the marketing research.

2. Analysis

Theoretical fundamentals of the tourist and recreational natural resource management are highlighted in the research papers of the geographers, in particular V. Andreichuk (Андрейчук, 1987), М. Влага (Блага, 2000), В. Vakhrushev (Вахрушев, Топоркова, 2001), V. Dubliansky (Дублянський, Смольников, 1969), V. Korzhyk (Коржик, 2007), А. Kucheruk (Кучерук, 1976), V. Radziievsky (Радзієвський, 1984), В. Ridush (Рідуш, 2005), J. Grodzicki (ed.) (1993), J. Gubała (2001), J. Kozłowski (Jahn et al. (eds.), 1989), R. Koniczny et al. (1996) and others. As of today the peculiarities and specificity of the tourist and recreational natural resource management within the protected territories have been well developed. However, the problem of determination of the speleotourism functioning principles, methods of the speleotourist potential assessment, main directions of the natural resource management optimization within the Podillia speleoregion remains unsolved. The necessity of the development of the scientific reasoning and practical recommendations concerning carrying out of the recreational activities in Podillia, as well as implementation of the strategic management mechanisms aimed at the enhancement of the recreational use of speleological resources efficiency determines the relevance and practical value of this study.

Except for the history of the Podillia caves exploration, today not only scientific works as to their tourist and recreational development are practically lacking, but they remain yet poorly explored sites themselves. Present efforts of several speleoclubs acting completely on their personal interest, often in the absence of the directed control on the part of professional speleologists are obviously not enough. And the lack of funding of the research works turns them into a spontaneous event.

Mysteriousness, unexploredness, danger and strangeness – these attractive features are well inherent to the Podillia cave systems. Simultaneously they represent the tourist recreational resource quality by the highest scores. It is necessary to use this opportunity both frugally and at the same time efficiently.

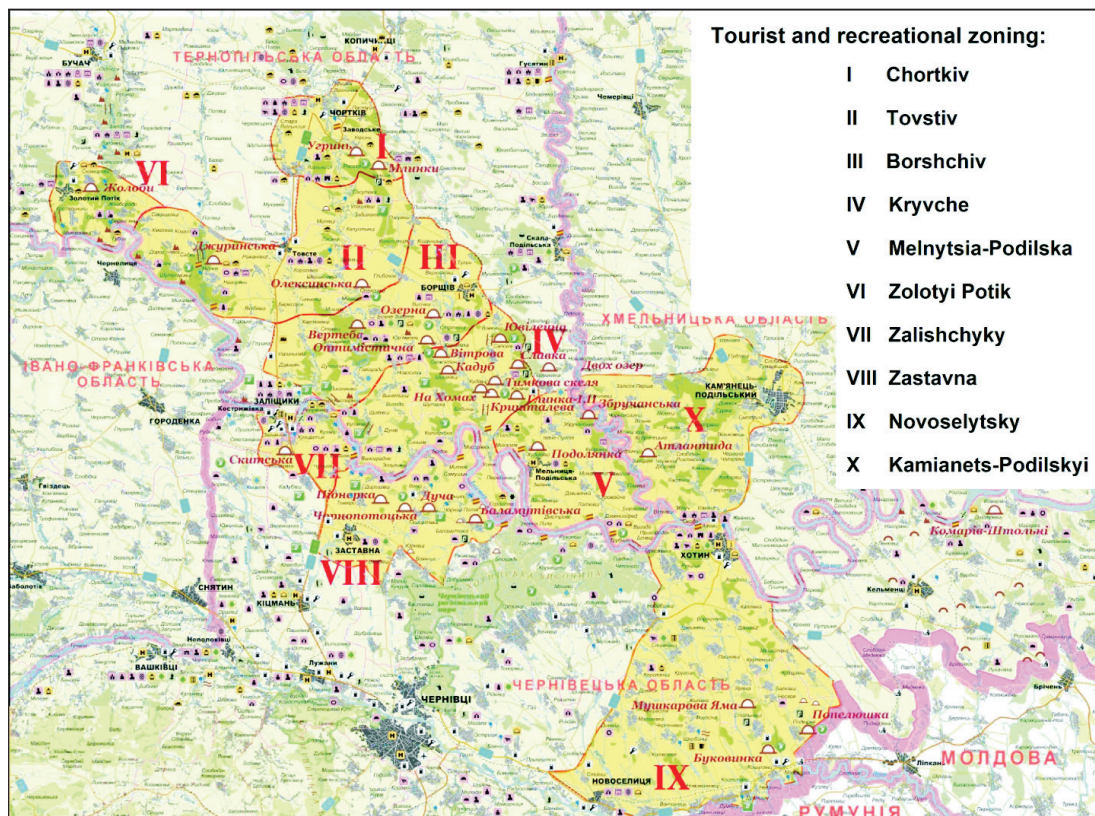


Fig. 1. Tourist and recreational zoning of the Podillia speleoregion

Source: personal elaboration.

For this purpose, it is necessary to clearly differentiate resources by zone, setting up the reasonable order of particular zones development (fig. 1).

Examination of the tourist and recreational activity development in the Podillia speleoregion will facilitate the improvement of general methodological and methodical fundamentals of study and optimization of such activity. Additionally, the economic activity is very prospective, able to provide an increase of jobs in the region and substantial fund inflows.

Establishment and existence of speleological national parks in the world practice can be characterised by significant peculiarities. Primarily, these are the specificity of the protected sites and those used for recreational purposes, where along with the substantial tourist and recreational interest there are present still substantial risks. The analysis of the famous world speleological complexes shows that such activities are necessary, since there are created best conditions for the unique speleological sites protection along with the regulated use here.

The karst caves are one of characteristic natural features of Podillia. The caves varied by size penetrate the gypsum and limestone rocks creating complicated underground labyrinths and vertical wells.

One of the most important areas of activity of the tourist-speleologists is a research work. Due to the multi-purpose use of caves in different sectors of economy in a number of karst regions of Ukraine, the caves have been put under the protection of the state and the access thereto has been restricted for the hikers and tourists.

Reaching the previously unexplored corners of the nature the human will inevitably intrude the environment that has been forming over the thousands of years. That is why in order to preserve the caves being of great scientific and educational value, they are declared nature reserves, reservation, integrated into national natural parks. The caves of the studied region, such as: Optymistychna, Ozerna, Krysh taleva, Verteba, Yuvileina, Perlyna, Atlantyda and Popeliushka are the natural monuments of national and regional value (Рідуш, 2005) (tab. 1 and 2).

We can give a number of interesting facts related to the Podillia caves, for instance: the most spacious cave is Ozerna in Ternopil region. With the length of 132 km its volume is 700 thous. m³ and the area is 310 thous. m²; the longest cave of Podillia is the Optymistychna cave located in vicinity of Korolivka Village in Ternopil Region. It has 240.5 km of passages at the depth of 20 m explored and mapped. Its area is 215 thous. m² and the volume – 500 thous. m³. This

Tab. 1. Caves – geological natural monuments of national value

No.	Cave name	Length [m]	Location
1.	Optymistychna	240 500	Korolivka Vil., Borshchiv District, Ternopil Reg.
2.	Ozerna	134 000	Strilkivtsi Vil., Borshchiv District, Ternopil Reg.
3.	Kryshtaleva	23 000	Nyzhnie Kryvche Vil., Borshchiv District, Ternopil Reg.
4.	Verteba	9 021	Bilche-Zolote Vil., Borshchiv District, Ternopil Reg.
5.	Mlynky	45 737	Zalissia Vil., Chortkiv District, Ternopil Reg.
6.	Yuvileina	1 623	Sapohiv Vil., Borshchiv District, Ternopil Reg.
7.	Perlyna	240	Krutylyv Vil., Husiatyn District, Ternopil Reg.

Source: personal elaboration based on B.T. Ridush (Рідуш, 2005).

Tab. 2. Caves – geological natural monuments of regional (local) value

No.	Cave name	Length [m]	Location
1.	Dzhurynska	1135	Nahoriany Vil., Zalishchyky District, Ternopil Reg.
2.	Uhryn	2120	Uhryn Vil., Chortkiv District, Ternopil Reg.
3.	Ulashkivska	94	Ulashkivtsi Vil., Chortkiv District, Ternopil Reg.
4.	Zholoby	7	Skomorokhy Vil., Buchach District, Ternopil Reg.
5.	Zbruchanska	254	Zbruchanske Vil., Borshchiv District, Ternopil Reg.
6.	Na Khomakh	128	Nyzhnie Kryvche Vil., Borshchiv District, Ternopil Reg.
7.	Yazychnytska	42	Mizhhiria Vil., Borshchiv District, Ternopil Reg.
8.	Dvokh Ozer	57	Muravinets Vil., Borshchiv District, Ternopil Reg.
9.	Slavka	9100	Verkhnie Kryvche Vil., Borshchiv District, Ternopil Reg.

Source: personal elaboration based on B.T. Ridush (Рідуш, 2005).

is the longest gypsum cave in Europe, the longest world gypsum cave and the world's second cave by the total length of its cave passages; the most accessible cave to the tourists is Kryshtaleva. It is located on a high rocky bank of Tsyhanka by Nyzhnie Kryvche Village in Ternopil Region. All its corridors and rooms stretch for 23 km, tourist route is 2.5 km, it has a convenient drive way, and its central labyrinth is electrified. There are many corridors, rooms and grottoes in the cave which walls and ceiling are covered with multi-coloured gypsum crystals (Коржик, 2007).

There are 14 reserved sites within the Novoselytsky District of Chernivtsi Region. One of them is the Popeliushka stalactite cave located near Podvirne Village. It is the third in Ukraine and the third among the world's gypsum caves by the length. It was discovered in 1977 by Chernivtsi speleologists led by V.P. Korzhyk. The constructed pitch-like entrance to the cave is located in Moldova (some branches of Popeliushka spread far deep into the territory of Moldova), 800 m from Podvirne Village. A new entrance from the territory of Novoselytsky District of Chernivtsi Region has been opened for the purpose of speleotourism, researches and speleotherapy. The cave has several dozens of lakes, around a dozen of wells 12–15 m deep, iron-manganese clay stalactites

and transparent gypsum crystals. The Popeliushka cave is called the most multi-storeyed one in Ukraine.

Unlike other famous caves the Popeliushka has three storeys connected with each other by 15–20-meter wells with regular round shape in their cross-sections. Average width of the underground passages labyrinth is 3–4 m, and height – 2–4 m. The cave's galleries and rooms are decorated with a fantastic and marvellous chaos of speleothems – stalactites and stalagmites (Коржик, 2007).

The Bukovynka cave located 1.5 km southwest of Stalnivtsi Village is an interesting home-science and tourist site. Today there are two sister-caves with separate entrances and passage networks – Bukovynka-1 and Bukovynka-2. The cave is rich in various morphological elements and secondary crystal formations. It was the first in Bukovyna where the stalactites were found. The cave can be used for the scientific and health resort and treatment purposes, as well as for the speleotourism development.

The Dovhy Yar cave is located near Pohorilivka Village of Zastavna District within the Dnister "wall". This is a unique three-storey cave labyrinth, the length of the passages passed by speleologists is up to 377 m. The cave represents nine of eleven stages of the karst process progress. Due to this fact it is

believed to be the most beautiful cave within the Chernivtsi Region (Рідуш, 2005).

We have distinguished the Podillia speleoregion as a regional taxonomic unit characterised by a complex of territorially structured features (physiographic, economical, etc.) inherent to it, associated with the existence of a group of genetic cave natural formations determining its tourist and recreational specialty (fig. 1).

Organisational basis of the proposed Podillia speleoregion zoning as an interconnected system was formed not only by the availability of the cave formations, but also the transport accessibility. Railway and road transport systems penetrate the separated zones expanding the opportunities of comprehensive tourist projects implementation, focused on more detailed familiarising both with the speleological resources of the territory and its culture, history, traditions, etc.

It has been found that the rate of the Podillia speleoregion use is extremely low (fig. 2) due to several reasons:

- not equipped cave systems, their non-compliance with the speleotourists' safety requirements;
- acute shortage of experienced tourist guides – cave labyrinth guides;
- absence of servicing;

- absence of advertising support.

The program of optimization measures aimed at the tourist and recreational potential of the Podillia speleoregion development shall contain necessary and long-term subdivisions and shall be based on the corresponding tourist and recreational zoning of the territory.

We consider it appropriate to advocate the idea of the famous Crimean geographer B. Vakhrushev (Вахрушев, Топоркова, 2001) concerning the establishment of the karst-speleological national parks in the territory of Ukraine.

To ensure sustainable use of the karst landscapes with high recreational potential, it is necessary to structure the human impact, create special categories of the natural sites under protection – karst-speleological national parks and tourist-hiking speleological complexes. According to the international classification of natural landscapes, and especially the territories under protection, national parks represent the highest level form of recreational arrangement of the natural territory which is simultaneously reserve and recreational (Вахрушев, Топоркова, 2001). Therefore, when establishing national parks, unlike natural reserves, such features of the territory as attractiveness, natural and utility comfort, attendance accessibility are of the critical importance.

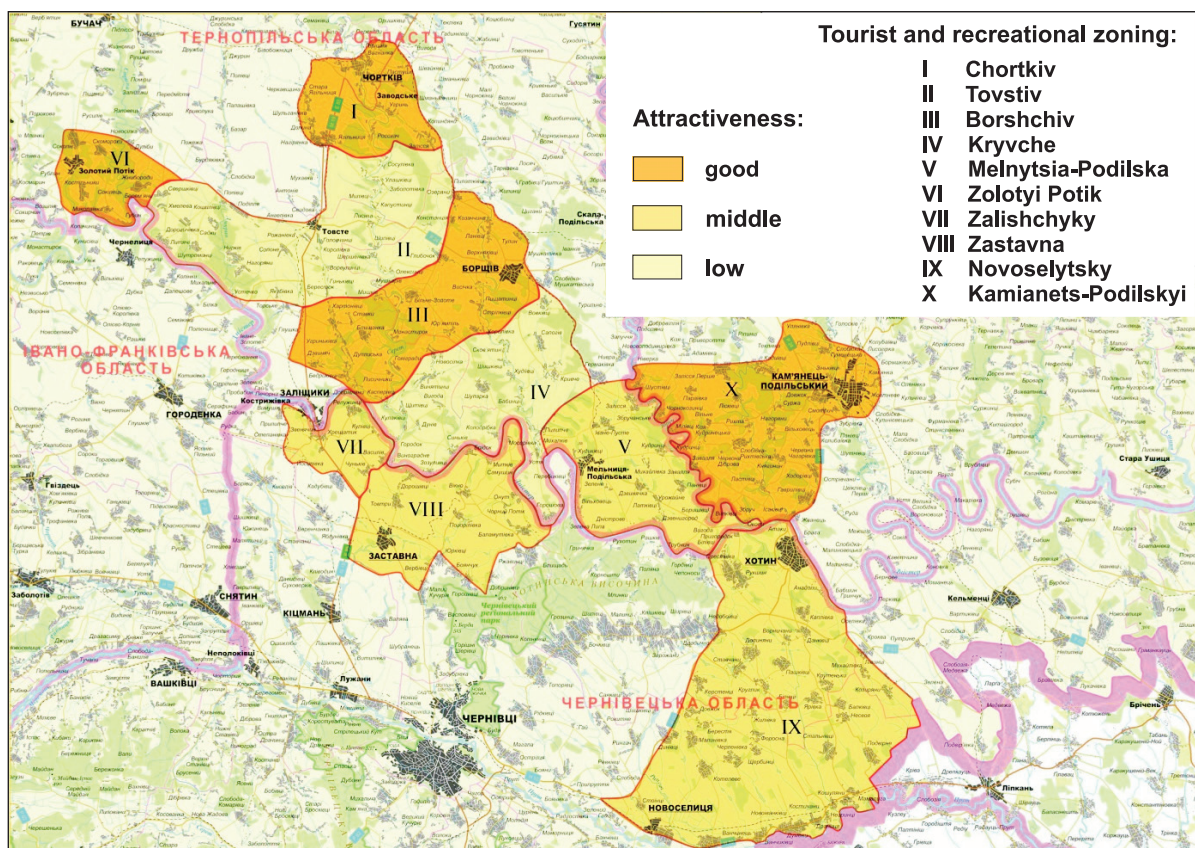


Fig. 2. Assessment of the Podillia speleoregion tourist and recreational zones

Source: personal elaboration.

National parks are a kind of the “open-air museums”. Provided that the demonstration of the natural and historic sites should be carried out in conformance with the museum tours and museology laws with maximum utilisation of the natural site’s specificity (Бахрушев, Топоркова, 2001). Two the most important dates in the history of the world national parks development should be distinguished: establishment of the first national park in 1872 (Yellowstone National Park in the USA, area – 898.3 thous. ha), and adoption of the “national park” notion by the General Assembly of the International Union for Conservation of Nature and Natural Resources in 1969 (Weaver, 2006). Establishment of national parks has opened new opportunities to the mankind to stand against the unsustainable use of the planet’s natural resources. Historically the idea of national parks has emerged from the endeavour to perpetuate the best samples of the nature and show them to people (Бахрушев, Топоркова, 2001).

Practicability of the Podillia speleoregion organisation into the structure of a national park cast no doubts, since this will arrange and put under the control the whole recreational activity within the territory thereof. Along with this, the functional features of management of such complex site as a national park are multi-variant and require consideration of the branched population of strategic, tactical and unpredictable by now challenges. Since the spatial extrapolation of any situation shall be most appropriate when the natural and human-modified territorial structure of the park are taken into consideration, the management measures should be developed just on the same basis, that will give additional opportunities with rather high probability of the general situation analysis, its interrelations and projected states.

National parks are established with the intent to preserve geological formations and wildlife, and usually become popular tourist areas. With the exploitation thereof, it is necessary to maintain the balance between these two directions which are, however, often interrelated: tourists often bring revenue to the parks, which can be invested in the nature preservation projects (Бахрушев, Топоркова, 2001), for instance, establishment of the national park in the studied region. At the same time the situation is complicated due to the availability of the areas with absolutely reserved operation mode (particular cave systems, such as Atlantyda, Ozerna, etc.) as well as the areas with controlled restricted utilisation.

We have determined the purpose of such national park establishment – it shall be preservation of nature of the national park in the mode which allows harmonious functioning of natural systems as well

as independent plant aggregations in the time and space. Additionally, we have determined basic lines of its activities:

- study of the natural (including the cave) flora and fauna of the national park territory (and in certain cases – the adjacent territories which are functionally related to the park territorial systems);
- absolute protection of the territorial systems’ functioning in a spontaneous mode within the absolutely reserved sites (certain cave systems);
- preservation of living plants, including rare and endangered species, as well as plant communities and landscape compositions in the natural and artificial environment within the park location, in order to improve aesthetic attractiveness of the territory;
- conducting research works aimed at the region’s cave systems optimization;
- scientific and educational work in the field of the cave systems’ nature protection;
- research work in the field of the tourist business development;
- research work in the field of the park construction;
- monitoring survey of the spatiotemporal functioning of the protected cave systems, biogeocoenoses and phytocenoses;
- monitoring survey of the natural systems’ state within the areas of regulated and recreational use.

At the same time, each line can be characterised by its individual purpose.

Activation of the tourist and recreational activities in the Podillia speleoregion will automatically “revitalise” the economic components of every marked zone. This is primarily associated with the need to intensify transport communication, construct roads, bus stations, etc. In this regard there is a real opportunity to attract foreign investments, since precisely such projects often enjoy support.

Another direction of promotion of the zone economic development is associated with the necessity of substantial expansion of the infrastructure thereof. Provided that there is no need for the major complexes establishment. It would be practicable to be limited to the tourist campsites and small camps which would specialise in relatively short-time accommodation of speleorecreationists and speleotourists. Such leisure and training camps should become the centres of the surrounding infrastructure development in the form of the speleological equipment rental stores, catering units, health care facilities, retail outlets to be specialised in the sale of the reference and promotional materials, souvenirs, etc.

It would be practicable to create a centre of the recreational and tourist activity regulation with every such infrastructural centre, that would perform control and statistical functions. All the information obtained from the zonal regulation centres should be accumulated with the central regulation institution of the speleoregion.

Development of all ten zones of the Podillia speleoregion (see fig. 1) according to such pattern shall be able to rapidly increase the number of proposed jobs due to substantial funding not only from investors (this shall be almost binding condition at the first steps of the region development), but also directly from the tourists and recreationists themselves.

Another problem that may emerge resulting from the intensification of exploitation of the Podillia speleoregion cave systems is their relative environmental vulnerability (instability).

In order to preserve the unique cave systems, it is necessary to:

- conduct preliminary environmental examination of all caves which are planned for the tourist and recreational use;
- produce appropriate ecological passports for the caves and periodically renew them;
- develop scientifically justified restriction criteria, both general and individual for every cave;
- arrange and implement environmental monitoring in all exploited caves;
- arrange the environmental control service which shall incur not only control obligations, but also the obligations to impose appropriate penal sanctions on those guilty of a violation of the environmentally safe state of the caves and the parts thereof.

Implementation of the proposed environmentally oriented measures will allow ensuring the environmental safety of caves under the terms of controlled rate of the recreational and tourist traffic.

3. Conclusions

Given researches prove the urgent need for the development of the Podillia caves' preservation and sustainable use complex program. It can be accomplished in the most effective manner through the establishment of the karst-speleological national park "Podillia Speleoregion", reasonably combining nature protection, economic and educational functions. Primarily this becomes possible with the establishment of the unified administrative body (the park directorate) which would consolidate regional and nationwide interests, could reasonably direct the funds, consider the rate of the recreational

and tourist traffic, optimally create the appropriate infrastructure.

The park research council would be able to provide the scientific and methodological grounds for the implementation of such objectives. Provided that, since the situation can be variable whether by state of the caves, or the load thereon, it is crucial to create the system of speleomonitoring and periodical assessment of the utilised potentials' aggregation.

Therefore, there exist all the reasons to start the procedures of the karst-speleological national park "Podillia Speleoregion" establishment.

References

- Grodzicki J. (ed.), 1993, *Jaskinie Tatrzańskiego Parku Narodowego. Jaskinie zachodniego zbocza Doliny Kościeliskiej*, PTPNoZ, Warszawa.
- Gubała J., 2001, *Jaskinie Niecki Nidziańskiej*, A. Kasza, Kraków.
- Jahn A., Kozłowski S., Wiszniowska T. (eds.), 1989, *Jaskinia Niedźwiedzia w Kletnie*, Ossolineum, Wrocław-Warszawa-Kraków-Gdańsk-Łódź.
- Konieczny R., Kramek F., Natanek T., Potok P., Pulina M., Rojek T., Szynalski J., Trumpus J., Zyzanska H., 1996, *Jaskinie Sudeców*, PTPNoZ, Warszawa.
- Weaver D., 2006, *Sustainable tourism: theory and practice*, Elsevier Butterworth-Heinemann, Oxford.
- Андрейчук В.Н., 1987, *Кадастр печер Західно-Українського регіону. Проблеми вивчення, екології та охорони печер*, Видавничий центр: Наукова думка, Київ.
- Блага М.М., 2000, Рекреаційно-ресурсний потенціал і фактори його використання, *Український географічний журнал*, 2, 28–30.
- Вахрушев Б.А., Топоркова Е.А., 2001, Узагальнення світового досвіду по створенню та функціонуванню карстово-спелеологічних національних парків і туристсько-екскурсійних спелеокомплексів карстових ландшафтів, *Наукові записки Вінницького державного педагогічного університету ім. М.Коцюбинського*, 2, 24–31.
- Дублянський В.Н., Смольников Б.М., 1969, *Карстолого-геофизические исследования карстовых полостей Приднестровской Подолии и Покутья*, Видавничий центр: Наукова думка, Київ.
- Коржик В.П., 2007, *Карст і печери Буковини. Проблеми моніторингу, охорони і використання*, Видавничий центр: Зелена Буковина, Чернівці.
- Кучерук А.Д., 1976, *Карст Подолия*, Видавничий центр: Наукова думка, Київ.
- Петлін В.М., Ховалко А.Б., 2014, *Рекреаційно-туристичний потенціал карстових печер Поділля*, Видавничий центр ЛНУ імені Івана Франка, Львів.
- Радзієвський В.О., 1984, *Подорож у підземну казку: путівник по карстових печерах Тернопільщини*, Видавничий центр: Каменяр, Львів.
- Рідуш Б.Т., 2005, *Підземні палеоландшафти, Фізична географія та геоморфологія*, Видавничий центр ВГЛ Обрій, Київ.