

UDC 378+502

**Mykola P. Rybak**<sup>1</sup>, Director of Carpathian biosphere reserve, Honored Environmental Guard of Ukraine  
ORCID ID: 0000-0003-3737-2433 *e-mail*: mykola.rakhiv@gmail.com

**Vitalina V. Lukjanova**<sup>2</sup>, PhD, Associate professor Department of The Department of Ecology and Safety of Vital Functions  
ORCID ID: 0000-0001-8964-3560 *e-mail*: vitalina\_lk@i.ua

**Yevheniia S. Anpilova**<sup>3</sup>, PhD, Senior Research Scientist  
ORCID ID: 0000-0002-4107-0617 *e-mail*: anpilova@ukr.net

**Iryna D. Yonash**<sup>1</sup>, Deputy Chief of the department for recreation and sustainable development of the Carpathian Biosphere Reserve  
ORCID ID: 0000-0002-8255-9590 *e-mail*: ira\_cbr@ukr.net

<sup>1</sup> Carpathian biosphere reserve, Rakhiv, Ukraine

<sup>2</sup> National Transport University, Kyiv, Ukraine

<sup>3</sup> Institute of Telecommunications and Global Information Space of NASU, Kyiv, Ukraine

## **THE ROLE OF ESTABLISHMENTS OF NATURE PROTECTED FUND IN ECOLOGICAL-EDUCATIONAL AND RECREATIONAL-TOURISTIC ASPECTS OF SUSTAINABLE DEVELOPMENT OF ZAKARPATTIA REGION**

***Abstract.** The best practices of Ukrainian Nature Protected Fund establishments (on the example of the Carpathian Biosphere Reserve) were studied in terms of ecological-educational and recreational-touristic activity development basing on sustainable development aspects. Here provided analysis of the reserve's visiting dynamics and the possibility of cooperation between the objects of Nature Protected Fund and higher education establishments. The positive influence of protected areas on practical training of future bachelors of specialty 101 "Ecology" was demonstrated.*

***Key words:** environmental education for sustainable development; Nature Protected Fund; biosphere reserve; tourist and recreational potential*

### **Introduction**

The establishments of nature protected fund act as concentration centers of ecotourism activity in Ukraine. Natural parks and biosphere reserves, as the basic protected areas, have the function of landscape diversity conservation in support of the concept for sustainable development.

The purpose of the Strategy for implementation of the Framework Convention on the Protection and Sustainable Development of the Carpathians [1] is to ensure the conservation and restoration of the unique natural complexes of the Carpathians which have a high nature-protection, aesthetic, scientific, educational, recreational and resource value; to prevent negative impact on mountain ecosystems and organization of coordinated, from environmental point of view, activity in the Carpathian region. Therefore, ecological education, as a basis for sustainable development, at all levels of social development of a person is able to save humanity

from the threat of destruction of the natural environment. This is possible through the formation of an ecological worldview and ecological culture instead of a consumer attitude to nature, which unfortunately prevails today.

### **Analysis of research and publications**

The Carpathian Biosphere Reserve (CBR) is a strategically important area not only in terms of protecting biological and landscape diversity and climate conservation on the planet [2], but also as a territory for protection of valuable natural complexes, cultural heritage of the region and recreational resources [3, 4].

The Carpathian Biosphere Reserve was established in 1968 on the territory of Ivano-Frankivsk and Transcarpathian regions. Since 1993, the CBR is a part of the International Network of Biosphere Reserves MAB-UNESCO. At present the territory of the reserve, together with the transition zone, covers an area of 181 138.8 hectares [4]. On the territory of the reserve are protected 1349 species of higher vascular plants, 66 species of mammals, 193 species of birds and many other living organisms [3, 5].

Nowadays, the direction of ecological education in the context of sustainable development is very important in the world [6–8]. Therefore, in each department of the CBR information centers were established to introduce visitors to the region's biological values, its cultural and historical heritage, recreational and touristic potential. Also, the Museum of Mountains' Ecology operates in the town of Rakhiv. Information centers and museum are places for holding numerous ecological educational events (open lessons and lectures, master classes, round tables, seminars) for schoolchildren, youth and teachers of natural sciences. The purpose of these activities is to increase environmental education and environmental awareness of youth, to raise responsible attitude towards nature and cultural heritage, which is consistent with the principles of sustainable development. Visitors can get acquainted with the directions of sustainable tourism and recreational activity of the CBR, taste local dishes, and buy art products of folk-craft.

The purpose of our work is to achieve the objectives of the sustainable development of Carpathians on the example of cooperation between Nature Protection Fund establishments (the Carpathian Biosphere Reserve) and higher education establishments (National Transport University).

To achieve this goal, it is necessary to address a number of issues:

- To investigate the visitors' dynamics of the CBR in recent years;
- Consider the possibility of cooperation between the establishments of the NPF and higher education establishments;
- Demonstrate the positive impact of protected areas on the practical training of future bachelors of the specialty 101 "Ecology".

### **Material and main results and their analysis**

For the development of eco-educational and recreational-touristic activities on the territories of the Nature Protection Fund of Ukraine, all legislative conditions have been created. But the current practice in this direction shows that the potential opportunities of the NPF establishments are not used sufficiently not only for internal, but also for international eco-touristic and educational activities. We should also note that the recreational development of nature territories leads to negative

pressure on the natural environment. Therefore, there is a need to develop eco-educational ways to regulate the movement directions of tourism, to improve and / or to create the appropriate infrastructure, optimal territorial management and approaching of nature reserves to the requirements of sustainable development for the tourism and recreational activity on these territories.

Every year people's interest in protected areas is increasing. The statistics of the visitors' dynamics in the Carpathian Biosphere Reserve, collected during the last five years is presented in Figure 1.

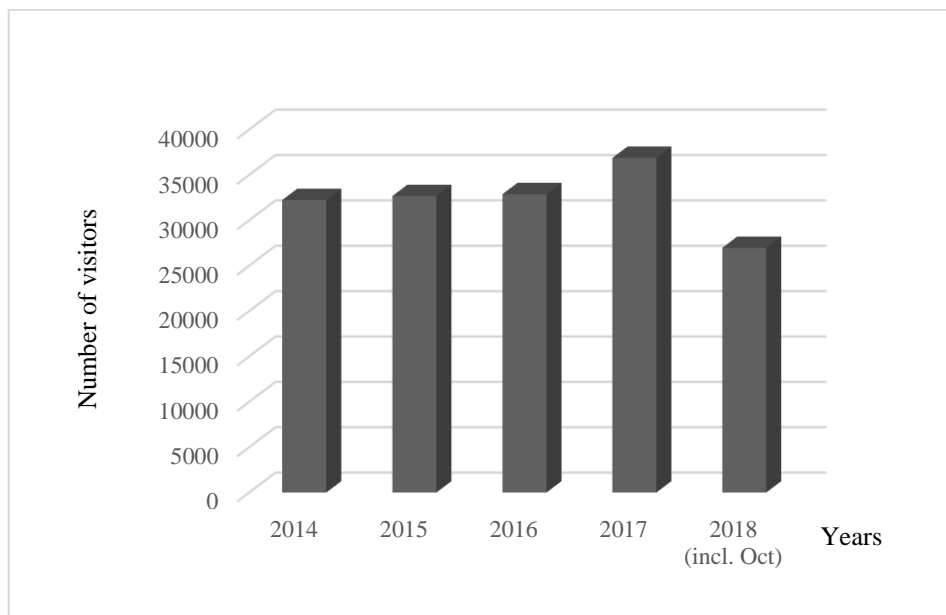


Fig. 1 – Dynamics of visitors in the Carpathian Biosphere Reserve during the period from 2014 to 2018

Here the positive dynamics of visitors of the reserve could be observed. This is due to the fact that today people want not only to have a rest during their vacation, but also to find out more about the places of protected areas of Ukraine, to get acquainted with the culture and customs of the Transcarpathian region, to see beautiful landscapes and feel in touch with the virgin nature. It is not a secret that significant part of Ukrainians who live in urban areas experience the isolation, a feeling of loneliness and constant psychological tension, which leads to stresses and health problems. Therefore, there is an urgent need to restore human health through communication with nature outside the urbanized areas of the metropolis.

Regarding the seasonal dynamics of the CBR's visitors (Fig. 2), we can say that the highest number of visitors come during the spring-summer period, due to the beginning of holidays and vacations. The visitors to the reserve mainly consist of tourist groups, schoolchildren and students. There is a category of visitors who use the reserve for short-term stay with a family or friends. In spring period the most popular place is the Valley of Narcissus, and in summer – the Petros-Goverlyanske field department of CBR (Table 1).

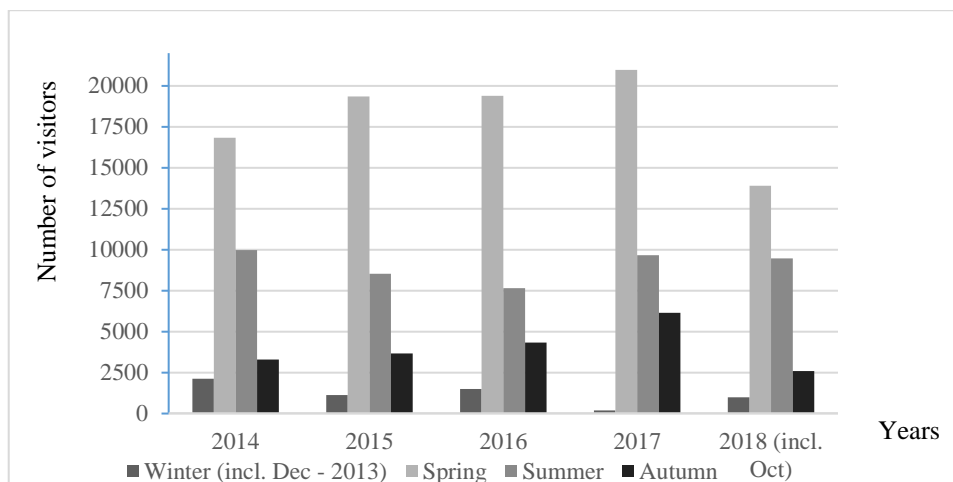


Fig. 2 – Seasonal dynamics of the Carpathian Biosphere Reserve’s visitors during the period from 2014 to 2018

The territory of the Carpathian Biosphere Reserve is located within the Rakhiv, Tyachiv, Khust and Vynohradiv districts of the Transcarpathian region and is divided into 11 scientific-research field departments – Kevelivske, Bogdan-Petroske, Chornohirske, Kisvyanske, Petros-Goverlyanske, Trybushanske, Rakhiv-Berlybaske, Maramoroske, Uholske, Shyrokoluzhanske and the Valley of Narcissus (Table 1).

Table 1 – Dynamics of the Carpathian Biosphere Reserve’s visitors by the Scientific Research Field Departments during the period from 2014 to 2018

№	Scientific Research Field Department	Area, ha	Number of visitors, people/years				
			2014	2015	2016	2017	2018 (including October)
Tyachiv district							
1	Shyrokoluzhanske	6533	90	84	0	20	5
2	Uholske	9441	413	757	689	288	100
Rakhiv district							
3	Bogdan-Petroske	3787	768	910	365	1130	2011
4	Kevelivske	10568	753	781	373	504	146
5	Chornohirske	9645	1403	1311	770	311	395
6	Maramoroske	4103	200	419	16	322	42
7	Trybushanske	7208	198	364	351	2074	2471
8	Kisvyanske	4630	97	39	121	92	104
9	Rakhiv-Berlybaske	3267	60	195	145	20	30
10	Petros-Goverlyanske	1297,8	5860	6227	7047	7550	4916
Khust district							
11	Valley of Narcissus	256	15465	17320	17951	19307	11413

One of the competences that needs to be developed in future bachelors, in accordance with the Standard of Higher Education of the specialty 101 Ecology, is the ability to solve complex specialized tasks and address practical issues in the field of ecology, environmental protection and sustainable use of nature, which involves

the application of basic theories and methods of environmental sciences. With this aim, the training of qualified ecologists requires the formation of environmental culture and environmental awareness among students through a combination of formal and informal ecological education. This should allow future specialists to be able to carry out and organize practical and educational activities of environmental orientation in their further professional activity and to develop ideas of ecological-economic, organizational, legal, informational and other opportunities and ways of solving ecological problems. One of the ways of addressing this task is to conduct practical training for students of higher educational establishments on the territory of the establishments of Nature Protection Fund of Ukraine.

This is possible basing on the fact that the ecological-educational activity of the establishments of Nature Protection Fund is conducted for spreading knowledge and raising awareness about the values of biological and landscape diversity, the formation of ecological consciousness and promotion of respect for the nature of their native land, the formation among population of modern ideas about the role of nature-protected areas.

In 2017 an agreement on cooperation between the National Transport University and the Carpathian Biosphere Reserve was signed. The first practical training for students of specialty 101 "Ecology" was held in summer 2018. A draft program of practical training that was implemented in 2018 is shown in Table 2.

Table 2 – National Transport University Students practical training program in the Carpathian Biosphere Reserve

Location	Activities
Location 1: Valley of Narcissus	1. Excursion to the ecological-educational center "Museum of Narcissus", and on the ecological path of the Valley of Narcissus. 2. Lectures on Zoology and Ecotourism.
	1. Getting acquainted with the project of a bicycle trail in the Valley of Narcissus. 2. Cleaning the valley from willow thickets.
	Visiting the city of Khust (8 km): Ruins of Khust castle; The Reformed Church-Fortress of the XIII century; Khust Museum of Local History; excursion around the city.
	1. Assistance with the household duties to the museum staff. 2. Speeches of the students regarding the impressions from visiting the Valley of Narcissus. Creative reflection: Making a poster-gratitude to the employees of the ecological and educational center "Museum of Narcissus".
Location 2: Beech primeval forests	1. Introduction to the Information and Tourist Center "Primeval Beech Forests – the UNESCO World Heritage Site". 2. Assistance with the household duties to the staff. 3. Teambuilding Master-class. 4. Lectures: Using GIS for forest reserve degradation predict and monitoring. Hiking to Menchul Mountain.
	1. Marking of ecological trails. 2. Excursion to Karst Bridge.
	1. Hike to the rock Chur and the cave Milk stone.
	1. Training reflection on the topic "Ecotourism". 2. Speeches of students about the impressions from visiting of the information and tourist center. Creative Reflection: Making a poster-gratitude to the employees of the Information and Tourist Center "Primeval Beech Forests – the UNESCO World Heritage Site".

Continuation table 2

Location	Activities
Location 3: Admini- stration of the CBR (city of Rakhiv)	1. Meeting with the Director of the CBR, Honored Environmental Guard Rybak M.P. 2. Meeting with Doctor of Biological Sciences Gamor F.D. and CBR scientists. 3. Getting acquainted with the local nature, excursion to the mineral water source. 4. Excursion to the Museum of Mountains' Ecology. 5. Ecological Quest-game.
	1. Hiking to Hoverla Mountain. 2. Activity on garbage collection on the way to Mountain Hoverla.
	1. A trip to the city of Rakhiv. 2. Hike to the mountains Lysa or Teryntyn (in the surrounding area of the Administration of the CBR).
	1. Excursion to the trout farm. 2. Visiting the geographical center of Europe. 3. Hiking on the ecological trails to the waterfall "Lykhyi" and Falcon Rock.

The practical training program correlates well with such university disciplines: Protected Areas Management and Studies, General Ecology (and Neo-Ecology), Biology, Soil Science, Landscape Ecology, Ecology of Plants and Animals, Methodologies of Scientific Knowledge. After studying the theoretical material during the academic year, students have the opportunity to participate in the nature conservation and touristic-recreational activities of the Reserve.

From our point of view, the main tasks of the eco-educational activities of the CBR are:

- studying the role of establishments of Nature Protection Fund in the protection of unique natural complexes; addressing scientific, ecological-economic and social problems of society;
- forming of consciously-careful attitude towards nature and its biological and landscape biodiversity;
- encouraging young people for self-education, search and analyze environmental information.

Therefore, during the practical training in the Carpathian Biosphere Reserve, students are actively engaged in studying ecological paths, excursions and quest-games, listening to lectures and discussions with leading specialists of the reserve, studying the natural features of Transcarpathian region. Also, a special element of educational work during the practical training is acquaintance with the Chronicles of Nature, the website of the reserve and scientific publications "Nature of the Carpathians: the annual scientific yearbook of the Carpathian Biosphere Reserve and the Institute of Ecology of the Carpathians of the National Academy of Sciences of Ukraine", "Zeleni Karpaty (Green Carpathians)", the newspaper "Visnyk of the Carpathian Biosphere Reserve", materials of scientific conferences [9].

## Conclusions

One of the important components of the professional ecological outlook development for future bachelor students in the field of ecology is a practical training on the territories of nature-protected establishments of Ukraine. This allows students to realize the value of natural objects of Ukraine, prompting them to love their land and protect its nature.

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*Text of the article was accepted by Editorial Team 06.11.2018*

**М.П. Рибак, В.В. Лук'янова, Є.С. Анпілова, І.Д. Йонаш**  
**РОЛЬ УСТАНОВ ПРИРОДНО-ЗАПОВІДНОГО ФОНДУ В ЕКООСВІТНІХ ТА РЕКРЕАЦІЙНО-ТУРИСТИЧНИХ АСПЕКТАХ СТАЛОГО РОЗВИТКУ ЗАКАРПАТТЯ**

**Анотація.** Вивчено практичний досвід установ природно-заповідного фонду України (на прикладі Карпатського біосферного заповідника) у розвитку екопросвітницької та рекреаційно-туристичної діяльності в аспектах сталого розвитку. Проаналізовано динаміку відвідування заповідника та можливість співпраці об'єктів природно-заповідного фонду та закладів вищої освіти. Показано позитивний вплив природоохоронних територій на практичну підготовку майбутніх бакалаврів спеціальності 101 «Екологія».

**Ключові слова:** екологічна освіта для сталого розвитку; природно-заповідний фонд; біосферний заповідник; туристично-рекреаційний потенціал

**Рибак Микола Петрович**

директор Карпатського біосферного заповідника, заслужений природоохоронець України

**Адреса робоча:** 90600 Україна, м. Рахів, вул. Красне Плесо, 77

**e-mail:** [mykola.rakhiv@gmail.com](mailto:mykola.rakhiv@gmail.com)

ORCID: 0000-0003-3737-2433

**Лук'янова Віталіна Віталіївна**

кандидат хімічних наук, доцент кафедри екології та безпеки життєдіяльності Національного транспортного університету

**Адреса робоча:** 01010 Україна, м. Київ, вул. Омеляновича-Павленка 1, к. 312.

**тел.** +380677985533, **e-mail:** [vitalina\\_lk@i.ua](mailto:vitalina_lk@i.ua)

ORCID: 0000-0001-8964-3560

**Анпілова Євгенія Сергіївна**

кандидат технічних наук, старший науковий співробітник відділу природних ресурсів Інституту телекомунікацій і глобального інформаційного простору НАН України

**Адреса робоча:** 03186 Україна, м. Київ, Чоколівський бульвар, 13

**тел.** +380683515387, **e-mail:** [anpilova@ukr.net](mailto:anpilova@ukr.net)

ORCID: 0000-0002-4107-0617



**Йонаш Ірина Дмитрівна**

заступник начальника відділу рекреації та сталого розвитку Карпатського біосферного заповідника

**Адреса робоча:** 90600 Україна, м. Рахів, вул. Красне Плесо, 77

**тел.** +380931374577, **e-mail:** [ira\\_cbr@ukr.net](mailto:ira_cbr@ukr.net)

**ORCID:** 0000-0002-8255-9590