

COMPARISON OF THE EDUCATIONAL OFFERS OF BIESZCZADZKI AND MAGURSKI NATIONAL PARKS

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Abstract:

Nature protected in national parks is an essential part of Poland's heritage, which should be protected against devastation; therefore, shaping public environmental awareness is of great importance. Environmental education offered by national parks can be an excellent way of completing the formal school education.

The paper presents the educational offer of two national parks in the Podkarpackie Province (Bieszczadzki and Magurski NP). The natural values of these areas are related to the diversity and richness of the natural environment and substantial biodiversity. Environmental awareness can be shaped in teenagers, teachers, and society. Indoor classes are organised in nature interpretation centres while field workshops are based on dedicated educational paths. The latter activity plays one of the most important roles in multidisciplinary classes, involving the knowledge of zoology, botany, phytosociology, geomorphology, hydrology, and history of the region.

INTRODUCTION

Appropriate and effective environmental protection is associated with the level of public awareness. As a branch of biology focused on the relationships between organisms and their living environment, ecology requires a holistic approach to natural phenomena. Knowledge of the environment, protection thereof, and recognition of threats should be combined with formation of an attitude of respect for the environment and the need for interaction with and rational management of the environment. According to the principles of sustainable development, environmental protection, economic growth, and human development are interrelated and exhibit mutual impacts; therefore, the objectives and methods of ecological education should comply with these assumptions.

Currently, the notion of ecological education is very broad and can be interpreted in diverse ways; it is frequently referred to as "environmental education". Ecological education includes only the scope of biological sciences, whereas the broader concept of "environmental education" comprises natural, social, and technical aspects [17].

Poland is one of the first countries in Europe to have developed and adopted an official government document "National Environmental Policy" (adopted by the Parliament in 1991). The document emphasises e.g. activities related to nature protection. The national environmental policy is systematically updated; the latest document (environmental policy IV) "The National Environmental Policy for 2009-2012 and its 2011-2016 Outlook" is focused primarily on implementation of legal requirements concerning conservation and improvement of the quality of the environment, stimulation of sustainable development, and implementation of launched programs and international obligations. The document mainly

underlines conservation of nature and biodiversity, conservation of natural habitats and species populations, and ecological education [31].

Ecological education has the best chance of success when delivered in sites with valuable ecosystems and in residential and touristic areas. Hence, a system of informal education provided by e.g. national parks, nature reserves, or natural history museums is complementary to the formal (schooling) system, i.e. the *National Strategy for Environmental Education* [21].

It is therefore necessary to provide ecological education to both tourism and leisure operators and their clients. Tourism operators working in protected areas as well as ecological and agro-tourism organisations are interested in promoting environmental ideas. Environmental education should involve the adult part of society and not only schoolchildren [18]. It consists in not only transfer of knowledge, but also development of sustainable patterns of behaviour. Therefore, it is important to choose appropriate methods and tools for effective enhancement of environmental awareness. The basic forms of environmental education in national parks comprise natural history museums, popular science publications, nature paths, and education centres [22].

Educational activities aimed at development of public awareness help to prevent many conflict situations in protected areas, since they shape eco-friendly attitudes [10].

In Poland, many areas with a high natural and cultural value have been conserved. These include national and landscapes parks, nature reserves, protected landscape areas, and Natura 2000 sites. They are characterised by great richness of natural resources and a considerable organisational potential, which can be a basis for environmental education.

The primary objective of the study was to present the range of the educational offer available in two national parks in the Podkarpackie Province, i.e. Bieszczadzki and Magurski National Parks. The educational offer proposed by both parks was characterised and compared based on the analysis of literature and information contained on the websites of the parks.

CHARACTERISTICS OF THE NATIONAL PARKS

Given their unique natural and cultural values, the Bieszczadzki and Magurski National Parks are extremely attractive touristic regions (table 1). The year-by-year increasing number of visitors to national parks highlights the growing importance of raising tourists' and local residents' environmental awareness through education in order to protect their resources.

One of the major tasks to fulfil by national parks is their educational activity aimed at showing the unique natural and cultural values as well as dissemination of the most essential knowledge in the field of nature protection. Environmental education is a prerequisite for effective protection of the nature and environment; it is also one of the main statutory tasks for national park services.

The main forms of environmental education include lectures, presentations, field workshops, talks, didactic activities, and publications.

Educational offer of the Bieszczadzki NP

Education premises

1. Scientific-Educational Centre in Ustrzyki Dolne with a natural history museum – a leading role in education (museum exhibits, audiovisual room, research laboratories, herbarium, library, laboratory, and tourist information centre); the Centre offers small-group activities based on didactic methods and aids.
2. Environmental Education Field Station in Suche Rzeki – workshops organised along nature paths
3. Tourist Information and Education Centre in Lutowiska – training, meetings, lectures

4. Environmental Education Field Station in Wołosate (under design, completion date: 2016)

Table 1. Short characteristics of the Bieszczadzki and Magurski National Parks

Selected factors	Bieszczadzki NP *	Magurski NP **
Year of establishment	1973	1995
Total area	29 202 ha	19 439 ha
Symbol	Lynx	Lesser spotted eagle
Administrative division	Powiat bieszczadzki County (Gmina Czarna, Lutowiska, Ustrzyki Dolne Communes); Powiat leski County (Gmina Cisna Commune)	Powiat jasielski County (Gmina Dębowiec, Krempna, Nowy Żmigród, Osiek Jasielski Communes); Powiat krośnieński County (Gmina Dukla); Powiat gorlicki County (Gmina Lipinki, Sękowa Communes)
Number of visitors [GUS 2014]	2013 – 332 000	2013 – 50 000
Number of visitors to museums [GUS 2014]	2013 – 19 834	2013 - 16 173
Protection forms	Strict protection - 63, 50 % Active protection – 36,20 % Landscape protection – 0,30%	Strict protection – 12 % Active protection – 87% Landscape protection – 0,30%
Natura 2000 site	PLC (180001) Bieszczady – Special Birds Protection Area and Special Habitat Protection Area 21 natural habitats from Annex I of the Habitats Directive	PLB (180002) Beskid Niski - Special Birds Protection Area PLH (180001) Ostoja Magurska – Special Habitat Protection Area 14 natural habitats from Annex I of the Habitats Directive
The highest peak	Tarnica 1346 m a.s.l.	Wątkowa 845 m a.s.l.
Geological structure	Outer Carpathians with flysch formations belonging to the Dukla and Silesian Nappe	Flysch Carpathians formed by Magura, Dukla, and Silesian Units and a small fragment of the Grybów Unit
Physical and geographical division of Poland by Kondracki [16]	Subprovince: Outer Eastern Carpathians Macroregion: Beskidy Lesiste Mezoregion: Western Bieszczady	Subprovince: Outer Western Carpathians Macroregion: Central Beskidy Mezoregion: Beskid Niski
Geobotanical division by Pawłowski [23]	Province: Central European Montane Subprovince: Carpathian Divide: Eastern Carpathians Region: Karpaty Lesiste Subregion: High Bieszczady	Province: Central European Montane Subprovince: Carpathian Divide: Western Carpathians Region: Beskidy Subrgion: Beskid Niski
Vegetation zones	Lower montane zone from 600 m to 1150 m a.s.l. Alpine meadow zone from 1150 m a.s.l. up to the highest peaks	Foothill zone – up to 530 m a.s.l. Lower montane zone from 530 m a.s.l. up to the highest peaks
Number of plant communities	137 plant communities	57 plant communities
Number of vascular flora species	826 species (including 30 East-Carpathian species)	767 species (including 8 gat. East-Carpathian species and 8 West-Carpathian species)
Endemic species	7 East-Carpathian endemites	7 East-Carpathian endemites
Mountain species	186 species: 31 alpine species 43 subalpine species 38 montane species 68 forest-zone species 6 sub-montane species	74 species: 2 subalpine species 22 montane species 44 forest-zone species 6 sub-montane species
Protected species of vascular flora	94 protected species including: 85 species - strict protection 9 species - partial protection 14 species - Polish Red Book of Plants 57 species - Red List of Vascular Plants	75 protected species including: 64 species - strict protection 11 species - partial protection 3 species - Polish Red Book of Plants 12 species - Red List of Vascular Plants
Lower plants and fungi	1054 fungal species 461 lichen species 301 moss species 112 liverwort species 31 slime mould species	463 macrofungal species 163 moss species 51 liverwort species 51 slime mould species
Vertebrate Fauna	252 vertebrate species: 1 agnatha species 18 fish species	245 vertebrate species: 14 fish species 10 amphibian species

11 amphibian species 6 reptile species 156 bird species (including 114 breeding spp.) 60 mammalian species	6 reptile species 160 bird species (including 119 breeding spp) 55 mammalian species
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Source: * [30, 24], ** [8, 5]

Educational programmes for children and teenagers [26]

1. “Kolorowe rozmowy z mieszkańcami naszej Ziemi” [Colourful chat with the inhabitants of our Earth] – (since 1995) - programme for pre- and early-school children implemented in the Scientific-Educational Centre in Ustrzyki; educational games and arts classes
2. “Moje Bieszczady” [My Bieszczady Mountains] – (since 1999) designed for grade IV-VI primary school pupils. Pupils’ work consists in active observation of the school and home environment based on the workbooks developed by the BdNP Scientific-Educational Centre. Pupils take part in practical activities, e.g. feeding birds in winter or building bird feeders and nesting boxes.
3. “Zachowamy piękno i walory przyrodnicze Bieszczadów” [Conservation of the beauty and natural values of Bieszczady] – (since 1993) a programme designed for junior secondary school students; a cycle of small-group activities and spring-autumn workshops based on workbooks
4. “Człowiek i Przyroda” [Man and Nature] – a programme designed for secondary school students as part of biological and chemical facultative classes; small-group and outdoor activities with the use of laboratory and audiovisual equipment

Nature paths

Table 2. List of nature paths in the Bieszczadzki National Park

No.	Name of nature path	Year of creation	Length [w km]	Number of stops	Walking time [h]	Symbol
1	Nature path “Ustrzyki Górne – Wołosate”	1996	4	19	2,5-3	Fire salamander
2	Nature-history path “Wołosate – Tarnica”	1996	4,5	25	3	Lesser spotted eagle
3	Nature path “Suche Rzeki – Smerek”	1997	5,9	20	2,5-3	Fir
4	Nature-history path “W dolinie Górnego Sanu”	1998	3	-	8	European beaver
5	Nature path “Ustrzyki Górne – Szeroki Wierch”	1999	7,8	26	3	Spring snowflake
6	Nature path “Połonina Caryńska”	2000	12,3	35	2,5 – 5	European beech
7	Nature path “Połonina Wetlińska”	2001	14,8	34	2-6	Globe flower
8	Nature path “Wielka Rawka”	2002	8,2	46	6	Rowan
9	Nature path “Rozsypaniec- Krzemień”	2003	14	28	4-6	Haller’s primrose
10	Nature path “Bukowe Berdo”	2003	14	24	5	Carnation
11	History-dendrology path “Berehy Górne”	2005	4,5	18	4	Apple tree
12	Transboundary nature path “Wielka Rawka – Kremenaros - Nowa Sedlica”	2013	10	39	4	Brown bear
13	Transboundary nature path “Wetlina – Rabia Skala – Runina”	2013	11	36	5,5	Rosalia longicorn

Source: [6, 25, 14, 20, 28, 29, 11, 15, 19, 7, 12, 32, 33]

Other forms of education [3]

1. Training for BdNP tourist guides – a theoretical and practical part implemented along nature paths
2. Teachers' training (since 1995) – based on nature paths. Since 2013, Polish-Slovak workshops have been held, focused on the method of protection, presentation of the natural resources of the International “Eastern Carpathians” Biosphere Reserve, as well as collaboration and exchange of didactic experience in school education.
3. Training for the employees of the park – both theoretical and practical activities. Joint Polish-Slovak training for the staff of the BdNP and “Połoniny” NP in Slovakia organised since 2013
4. Summer with nature (since 1992) – Friday-evening, richly illustrated open lectures on nature and culture delivered by nature scientists and members of expedition teams

Publications

1. Bieszczady Annals (published since 1992)
2. Bieszczady Monographs (published in 1997- 2001), revived in 2013
3. Bieszczadzki NP Bulletin (since 2009), Online Bulletin of the Bieszczadzki National Park–special edition
4. Multimedia publications, brochures, guidebooks of nature paths, workbooks for students

Educational offer of the Magurski NP

Education premises

1. Education Centre in Krempna with a museum (main exhibition hall with multimedia nature presentations showing the nature of the MNP in the 4 seasons of the year, nature hall, conference room, reading room, exhibition of tree trunks, exhibition of deer and elk antlers, photographic exhibitions).
2. Didactic Garden in the Educational Centre in Krempna

Educational programmes for children and teenagers

1. “Wyprawa obserwatorów” [*Observers' expedition*] – field workshops held along the “Kiczera” nature path designed for pre- and early-school children with the use of simple observation tools
2. “Jak poczuć dziką przyrodę” [*How to sense the wildlife*] – field workshops held in the Didactic Garden in the Educational Centre in Krempna for pre- and early-school children and grade IV-VI pupils.
3. “Twórczy spacer wśród natury” [*Creative walk in nature*] – field workshops held in the Didactic Garden in Krempna for pre- and early-school children in the form of observation and arts classes
4. “Niezwykłe życie roślin” [*Unusual life of plants*] – field workshops held in the Didactic Garden in Krempna for grade I-III and IV-VI pupils.
5. “Ślady zwierząt – czyli jak podglądać przyrodę” [*Animal traces or how to observe nature*] – field workshops held along the “Kiczera” nature path for grade I-III, IV-VI, junior secondary school, and secondary school students.
6. “Tajemniczy ogród” [*Secret garden*] – field workshops held in the Didactic Garden in Krempna for grade IV-VI, junior secondary school, and secondary school students
7. “Magurski las” [*Magura forest*] – field workshops held along the “Kiczera” or “Hałbów” nature paths for grade I-III, IV-VI, junior secondary school, and secondary school students
8. “Podstawy fitosocjologii” [*Basics of phytosociology*] – field workshops held along the “Kiczera” nature path for junior secondary school and secondary school students

9. “Bioróżnorodność” [*Biodiversity*] – field workshops held along the “Kiczera” nature path for junior secondary school and secondary school students in the form of classes and observations
10. “Drzewa Magurskiego Parku” [*Trees in the Magurski Park*] – workshops held in the Educational Centre in Krempna for pre- and early-school children as well as grade IV-VI pupils
11. “Zwierzęta MPN” [*Animals in the MNP*] – small-group workshops held in the Educational Centre in Krempna for pre- and early-school children
12. “Wilk” [*The wolf*] – workshops held in the Educational Centre in Krempna for pre- and early-school children as well as grade IV-VI, junior secondary school, and secondary school students
13. ‘Orlik krzykliwy’ [*Lesser spotted eagle*] – workshops held in the Educational Centre in Krempna for grade I-III, IV-VI, junior secondary school, and secondary school students
14. “Nadobnica alpejska” [*Rosalia longicorn*] – workshops held in the Educational Centre in Krempna for grade I-III, IV-VI, and junior secondary school with the use of teaching aids and arts classes
15. ‘Energia, wody i odpady w moim domu’ [*Energy, water, and waste in my house*] – workshop held in the Educational Centre in Krempna for grade IV-VI, junior secondary school, and secondary school students
16. “Ochrona przyrody w Polsce i na Świecie” [*Nature protection in Poland and worldwide*] –workshops held in the Educational Centre in Krempna for grade IV-VI, junior secondary school, and secondary school students
17. “Martwe drewno” [*Dead wood*] – field workshops held along the “Kiczera” nature path for junior secondary school and secondary school students
18. “Ogólne informacje o PN” [*General information about the NP*] – lectures held in the Educational Centre in Krempna for junior secondary school and secondary school students as well as adults
19. “Dziedzictwo kulturowe Beskidu Niskiego” [*Cultural heritage of Beskid Niski*] – lectures held in the Educational Centre in Krempna for junior secondary school and secondary school students as well as adults

Other forms of education

1. Questing “Okolice Muzeum MPN” [*Surroundings of the MNP Museum*] – exploration of the area with the help of clues specified in a leaflet
2. Family workshop for families with children: “animal traces”, paper wicker”, “microworld”
3. “Action: frog” (since 2005) for primary school pupils, active protection of amphibians during spring migrations to breeding grounds; fencing roads with a garden net and installing bucket-traps for catching the amphibians and transferring them to breeding sites.
4. Workshops for young discoverers (since 2012); workshops for schoolchildren held during winter break; games and short trips
5. Summer in the MNP – weekly holiday workshops for primary school children; games and short trips

Nature paths

Table 3. List of nature paths in the Magurski National Park

No	Name of nature path	Year of creation	Length [w km]	Number of stops	Walking time [h]
1	Professor Jan Rafiński Kiczera nature path	2005	2,5	11	2
2	Hałbów-Kamień nature path	2007	3,5	9	2,5
3	Folusz nature path	2011	4	12	4

Source: [1, 2, 4]

Publications

1. Brochures, guidebooks of nature paths, maps
3. Monographs
4. Magurski NP Bulletin (since 2014)

SUMMARY

The primary objective of environmental education is to change public attitudes towards the environment surrounding humans by raising the level of man's awareness in this regard. It is advisable that school education should be combined with extracurricular activities provided by social organisations and educational institutions established in national parks, as this ensures better outcomes in the process of knowledge acquisition.

The quality of educational activities held in national parks depends on the commitment and competence of the staff; therefore, employees should continuously upgrade their qualifications by taking part in training and courses [13].

In Polish national parks, 116 didactic workers were employed in 2011 [27] and the number was slightly higher (by 16) than that in 2009 [13]. The number of other staff involved in the educational activities increased as well. In 2011, these were technical assistants (40), park employees (90), and others (ca. 500). Currently, the Bieszczadzki NP employs 8 workers dealing with environmental education and 5 workers temporarily engaged in educational activities, whereas in the Magurski NP, 4 didactic positions have been created [27].

The objects that house audiovisual rooms, laboratories, permanent and temporary exhibitions, libraries, natural history museums, etc. are important sites of environmental education. The rich educational base in the Bieszczadzki NP consists of three centres, which hold seminars, talks, lectures, and workshops and provide accommodation for participants. Noteworthy is the ongoing construction of another centre in Wołosate, which should be completed in 2016. The educational base of the Magurski NP is represented by one centre in Krempna with its educational halls and numerous exhibits and exhibitions.

A substantial role in education is played by natural history museums whose offer is addressed both to groups and to individuals. A flagship of the MNP is the modern museum equipped with an intelligent lighting control system, music background, and video projection devices. The museum has exhibits perfectly imitating live specimens and devices stimulating nature effects. This makes the information about nature more attractive.

All national parks in Poland are constantly expanding their educational offer targeted particularly at pupils from nearby primary, junior secondary, and secondary schools, teachers, university students, adult visitors, the disabled, tourist guides, and groups with individual programmes [13].

Educational programs for children and teenagers have been held in the Bieszczadzki PN for many years. They have a form of games and presentations for the youngest and workshops based on nature paths for the older participants. The programmes are suited to pupils' age and provide both short lectures and all-year education based on the workbooks published by the NP. Besides the numerous thematic programmes developed for pre-school and all-grade schoolchildren, the Magurski NP initiated educational activities held during summer and winter holidays for local children. Furthermore, the educational programmes implemented in primary school and targeted at protection of amphibians during their spring migrations to breeding grounds are highly popular.

An important factor in the development of environmental education is teacher training aimed at upgrading teachers' knowledge and qualifications [17]. The Bieszczadzki NP has great experience in this regard: field workshops based on nature paths have been organised for teachers since 1995; recently Slovakian teachers have been taking part in these activities.

Currently, an increasingly popular form of education is the Internet (bulletins, competitions, and educational programs) and multimedia (diaporamas, educational games), which provide an opportunity of reaching a wide range of young audience. However, the most important form of environmental education for children and teenagers in parks are still outdoor activities held along nature paths or touristic trails, as they offer direct contact with nature and observations of nature [13].

In all national parks in Poland, didactic (both nature and history) paths have been established for implementation of field educational activities. In 2011, there were 144 paths in Poland, with a total length of approx. 665 km [27]. Currently, there are 13 nature paths in the Bieszczadzki NP with a total length of 114 km, including 2 transboundary (Polish-Slovakian) paths. In turn, the Magurski NP offers 3 paths with a total length of 10 km. The nature paths consist of marked stops and have a varied length and degree of difficulty. Both parks offer guidebooks of the nature paths, which provide detailed information about objects that can be observed at each stop. The activities held along the nature paths offer an opportunity to explore the nearest surroundings, convey the educational content, identify the relationships and principles of functioning of ecosystems, assess the condition of the environment, and carry out simple measurement studies.

In recent years, the adult population has exhibited growing interest in gaining additional environmental knowledge. Hence, environmental education programmes targeted at the general public have been developed. In the Bieszczadzki NP, the programme “*Wakacyjne spotkania z przyrodą*” [Summer with nature] has gained considerable popularity. This cyclic event held since 1992 offers Friday-evening lectures on nature and culture delivered by nature lovers and members of expedition teams. The offer in the Magurski NP, targeted at adults, comprises lectures on the nature in the NP and the cultural heritage of the area. Furthermore, the offer also includes thematic family workshops and the increasingly popular questing, i.e. exploration of the area with the help of riddles and clues.

Environmental education available to visitors to national parks is most frequently implemented through information boards and tourist information offices. The boards are usually located at touristic trails, entrances to the Park, parking lots, and near monuments of culture. They provide the most important data about the national park, principles of visiting the park, etc. Another task of tourist information offices, besides the informative one, is to disseminate knowledge about the parks.

A very important and helpful function in environmental education is served by publications containing information about the natural and cultural values of the area and helping to visit and move around the national park. The Bieszczadzki NP has a wide range of publications such as short brochures, series of guidebooks of the nature paths, and scientific publications, e.g. *Bieszczady Annals* and *Bieszczady Monographs*. Recently, Bieszczadzki NP Bulletin, which presents the most interesting events and information concerning the NP, has been launched (the first volume - 2014)

The national parks of the Podkarpackie Province are interesting natural areas offering multiple opportunities for observation and encounter with nature through education aimed at presenting the natural and cultural values to the public. Exploration of nature leads to adoption of environmentally friendly attitudes, respect for nature, and nature protection activities.

The nature of national parks is an important part of Poland's heritage that should be protected against consumerism, since it is not easily renewable. Therefore, profound exploration of nature contributes to appreciation of its values and understanding of the principles of conservation, while environmental education can provide methods, tools, and skills for acquiring knowledge about nature.

To sum up the educational activities of the analysed national parks, greater potential can be noticed in the Bieszczadzki NP. This is associated with multiple factors, e.g. greater diversity of the natural and cultural environment, the longer history of the park, greater area, implemented protection methods, and the richer tourist and educational infrastructure.

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