

East Carpathians Biosphere Reserve, Slovakia

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Key Messages/Lessons learnt

- The Slovak part of East Carpathians Biosphere Reserve (hereafter BR) provides natural habitats for unique range of fauna and flora species and communities, many of which are endangered to some extent and this way contributes to halt global biodiversity loss. It represents one of the seldom refuges in urban expansion world and fragmented landscape.
- There are ten villages with 2248 inhabitants, who live inside of territory biosphere reserve in the east and south of the Slovak section of the BR. The communication and cooperation with local community and interested stakeholders are crucial to achieve the goals of the biosphere reserve and nature protection. Participatory approaches to decision – making and governance are needed, such engagement builds upon the enthusiasm and interests of all partners involved. It is necessary to strengthen and continue in the process of participatory management in the region that has started.
- The reserve has long-term history of protection and research, but ideas of nature protection still need to be widely acknowledged and utilized by local community. Application of environmental education and rising public awareness is actual all the time. It is important to connect ideas of nature protection with benefits and well-being of local community. Local community has started to learn how to use natural and cultural treasures of BR as products of tourism and thus substituting their incomes from timber industry and halt the negative demographic trend.

Biosphere Reserve description

East Carpathian Biosphere Reserve is situated in easternmost Slovakia at the junction of the political boundaries of three European countries – Poland, Slovakia and Ukraine. Complex protection of the landscape dates from 1977, when the Východné Karpaty/Eastern Carpathians Protected Landscape area (hereafter PLA) was established covering 96 910 ha. In 1997 protected area of PLA was split into two parts. In the more valuable eastern part, the Poloniny National Park was established on the area of 29 805 hectares with buffer zone covers 10 973 hectares. The area of present PLA “Eastern Carpathians” covers additional territory outside the National Park Poloniny further to the west. The site became part of the Network of Biosphere Reserve in two stages, with the Slovak and Polish side

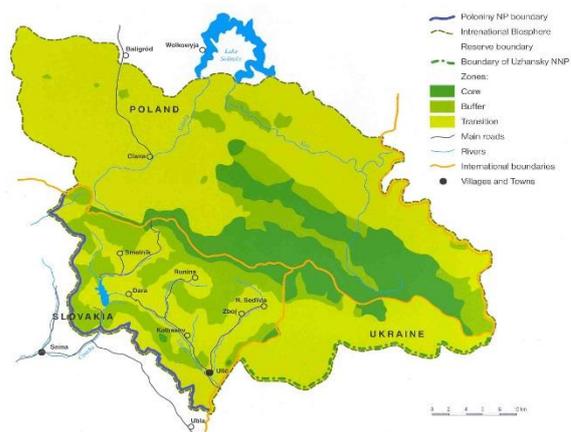


Figure 1: Map of the trilateral East Carpathian Biosphere Reserve

being designated in 1993, joined by the Ukrainian in 1998. It has been the first trilateral biosphere reserve in the world. The area of the Slovak part of BR overlaps with

territory of the National Park (hereafter NP) Poloniny. The Slovak and Polish national park that are part of the biosphere reserve both received a “European Diploma of protected areas” in 1998 from the Council of Europe which is designed to recognize “protected natural or seminatural areas of exceptional European interest from the point of view of conservation of biological, geological or landscape diversity by virtue of their scientific, cultural or aesthetic interest if they have an appropriate protection system, perhaps also in conjunction with programmes of action for sustainable development. On June 28, 2007, the Primeval Beech Forests of Carpathians, located in Slovak part of BR were inscribed, as transboundary serial nomination (Ukraine/Slovakia), on the UNESCO’s World



Figure 2 : The largest complex of primeval forests in Slovakia is located in the Slovak part of East Carpathian Biosphere Reserve

Heritage List.

The location of the BR at the junction of the East and West Carpathians is mirrored by a unique range of fauna and flora species and communities. The well-preserved vegetation-beech forests, cut meadows, pastures, and special mountain meadows “poloninas” – predetermines the natural diversity of biocenoses. A detailed inventory of vascular plant has identified more than 1000 species in the Slovak section of the East Carpathian BR. The floristic richness of the BR is underlined by the known occurrence of 1200 species of higher fungi (*Ascomycetes* and *Basidiomycetes*), more than 330 of mosses (*Bryophyta*) and close to

200 of lichens. So far, 6352 animal species have been found, including 6032 species of invertebrates and 320 species of vertebrates. Since 2004, the mammalian fauna in the Slovak part of BR has been enriched by human-induced introduction of European bison (*Bison bonasus*) due to dislocate from zoological gardens. The woods are inhabited by large carnivores as lynx (*Lynx lynx*), wolf (*Canis lupus*), wild cat (*Felis silvestris*) and brown bear (*Ursus arctos*) and feathered inhabitants such as woodpeckers and owls. This combination of big charismatic species and birds is unique and in the present are only on a few sites in whole Europe. Almost whole area of BR are included in the Natura 2000 network.

In 2010 the Poloniny Dark-Sky Park was officially proclaimed on the territory of the Slovak part of East Carpathians Biosphere Reserve. The park is Slovakia’s darkest site, where the night sky is preserved in its natural appearance. There are only a few such sites in the civilized world. Wooden temples of the Byzantine Rite, that are national cultural monuments, are part of the protected area. The oldest are from the 17th century. Some of them still hold Divine Liturgy to this day. The territory has rich and interesting history and culture, such military cemeteries of the First World War or local Ruthenian culture. The water quality in the territory of BR is very high. As a result, in 1987 the water reservoir Starina was built. It is the biggest water reservoir for drinking water in Central Europe with the surface of 240 hectares and volume 60 mil. m³ of water, that represents strategic source of water for whole eastern part of Slovakia (including big regional cities as Košice and Prešov).

BR challenges

The BR confronts a range of challenges that can be categorized as legislative or model of area management. The management arrangements within the BR borders are rather complex. The BR and NP are managed by the Administration of the Poloniny NP situated in the village Stakčín. There is no official biosphere reserve governing body. The most valuable habitats



Figure 3: Since 2004 the European Bison is permanent part of the East Carpathians BR in Slovakia

of the BR (2432, 77 ha – 8, 16 %) are designated as national natural reserves and nature reserves. These areas are strictly protected and no human activities are allowed there. The rest of the BR (NP) is open for forest harvesting, agriculture, water management and hunting. The park manages only mentioned strictly protected parts directly. Other land and natural supplies as forest, agricultural areas and water sources are managed by the various management bodies. The Poloniny NP lacks land ownership and management rights. Relationships among the park administration and the other management bodies are not always without controversies, as the park administration's recommendations on e. g. forest management, do not have legal force. The attractive cultural and natural heritage does imply developmental potentials, but under current legislation and policy, the BR is unlikely to have the capacity to take the lead on this.

The key challenge for the region seems to be the structural marginalization of the area due to its remote location, poor infrastructure and limited employment opportunities. Most of the villages don't have canalisation or running water, despite being adjusted to the water reservoir.

The unique potential of territory which was awarded by many certificates and marks produce economic benefits for local

community only to a certain extent. Despite large numbers of natural values, local people perceive nature protection as constraints on development that do not provide adequate alternatives to local entrepreneurship. Forests cover more than 90 % of the BR and more than half of the forests of the BR are in private. Forestry is the dominant economic activity and primarily providing opportunities for low-skilled jobs. Most of the generated revenues from natural supplies as timber from state-owned forests go directly to the state budget. Revenues from water supplies go directly to the water management body. That's why local inhabitants also doesn't have almost none benefits from natural sources. The present situation is result of past mistakes, there were unsuitable and insufficient communication with stakeholders and unreasonable restrictions came from the side of the state institutions.

The situation gets worse because of bad demographic situation. The territory of BR is situated in the District of Snina, which has become depopulated. Number of inhabitants rapidly has declined since 2000, natality is on the low level, population gets older and mainly young people leave the region in search of employment. The total number of inhabitants in municipalities in the BR declined by 16 percent between 2001 and 2012, according to the demographic statistics. In the region is lack of job opportunities with adequate salary, so people look for job in big cities in Slovakia or go abroad. This contributed significantly to the bad current socio-demographic situation of the area and turned it into most scarcely populated and one of the least developed regions in Slovakia.

Development of strategic approaches to tourism could become a unifying interest, providing grounds for dialogue and partnership building. It is clear that structural responses in building proper institutional structures, sufficient resource base for policy implementation, research, and further development of participatory approaches to decision - making and governance are needed for the park to become driving force in addressing the challenges it face.

Initiatives/Actions on SDGs

The East Carpathian BR contributes directly and indirectly to several sustainable development Goals (SDG). Directly contributes to **SDG 6**, because the strategic regional water source - the Starina reservoir is situated there and supplies high-quality drinking water to the most of towns and villages of the eastern part of Slovakia. It has a huge volume, nowadays the using capacity is only less than half of its potential offtake. The East Carpathian BR contributes directly to **SDG 13**, because of the potential of nature forest regulatory functions in provision of services and the mitigation of adverse effects of climate changes by the carbon retention, retardation and accumulation in nature forests. The East Carpathian BR contributes indirectly to **SDG 11**: sustainable cities and communities and **SDG 17**: partnership towards to achieve the targets. Most explicitly, the East Carpathian BR contributes to **SDG 15**: Life on Land, which aims to protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss.

On 15 November 2013 the Coordination Council of International Biosphere Reserve (IBR) Eastern Carpathians was founded, which included representatives of all protected areas forming IBR "Eastern Carpathians". The general framework plan of the International Biosphere Reserve "Eastern Carpathians" was developed by the Coordination Council of the International Biosphere Reserve "Eastern Carpathians" in the next 10 years, in which joint initiatives in the field of nature protection are planned. Similar body at national level was formed in Slovak part of ECBR. In this National Coordination Council are included the Administration of the Poloniny National Park (also BR), municipalities and forest managers. Action plans are prepared on the basis of the law in force in each country



Figure 4 : Starina – strategic regional water reservoir used only for drinking water is the biggest in Central Europe

separately. Plans are drawn up by teams of experts and reviewed by the local authorities. Communities also have the opportunity to participate in the development of legislation within protection plans. Directorates of protected areas have a duty to inform local communities and stakeholders on protection plans and dates of consultations.

In Slovak part chosen key groups of local stakeholders are invited. We collected the comments, ideas, complaints and advices of stakeholders and included them to documentation of nature protection.

The first long-term Management Plan for the Poloniny National Park for period 2017-2026 was finally approved by the Government of Slovak Republic on July 7th, 2016. Previously nature protection activity took place on the basis of annual plans of nature protection.

In May 2015, the Administration of the Poloniny NP prepared the draft Poloniny NP Management Plan. The part of the preparation process was to inform relevant stakeholders about the management objectives and tasks and about the possibilities and conditions under which stakeholders may be involved in their implementation. Consultations gave more space to discussions about opportunities provided by natural and cultural potential of the area of the national park. This form of dialog replaced former one-sided form of informing owners, land users, land



Figure 5 : One of a numerous meetings with stakeholders in the BR. The participatory management is necessary to achieve the goals of the biosphere reserve and nature protection.

managers, local governments and the public about the nature protection and the possibilities of loss compensation. The result of the discussion, which goes beyond the interests of nature conservation, is included in the Action plan which is annex to the draft Poloniny NP Management Plan.

The Ministry of Environment of the Slovak Republic in cooperation with the district office at the county and the State Nature Conservancy of the SR realized the whole process of public hearing and commenting of the document in the way that more relevant subjects could comment on the draft. After all discussions, the draft was approved by the Ministry of Environment and sent for inter-departmental commenting procedure.

Practical Outcomes/Achievements

The role of protected areas in Europe has changed over time. For many, their original role was that of preserving biodiversity, of species protection and ecological integrity, while at the same time ensuring exemplars of Europe's great diversity of habitats, land and seascapes were being preserved in perpetuity. In more recent years, public recreation, sustainable development and community involvement models of protected area governance have become the norm for protected areas. The same way the focus of

BR is rather on demonstrating and testing how human being can live and work with nature without destroying it. Administration of BR is diversely involved in agriculture, forestry and tourism, and develop educational activities in the fields of the environment, sustainable development and culture. BR represents multifunctional living or working landscape. Thanks to support by a grant from Switzerland through the Swiss Contribution to the Enlarged European Union and support by the Norway grants in BR has successfully started ongoing process of local community involvement and start up an integrated understanding of conservation, according by protected areas serve to preserve natural and culturally determined biodiversity within the context of the local sustainable development. Amount of seed money actions have been realized in the field of soft tourism by actors of local community by these grants, as well.

Another good example of community involvement is restoration of European Bison back to the nature of BR. In the past European bison were distributed all over the European continent. In Slovakia, the last bison was killed in the 16th -17th century. In many European countries the reintroduction of European bison is accomplished using animals previously kept in zoological enclosures. Release of captive animals into the wild to restore wild-living populations was at first attempted in the Polish part of Białowieża Forest in 1952 and then in forests in Belarus, Lithuania, Russia, Slovakia, Ukraine and Kyrgyzstan. However, all free-ranging as well as semi-free herds are isolated and these small populations quickly lose their genetic heterogeneity and are more vulnerable to extinction. High genetic similarity in all wild-living populations is indicative of inbreeding as the result of the bottleneck effect. Several studies reported the high (and still rising) inbreeding coefficient in European bison from Białowieża Forest. Inbreeding has a detrimental effect on health, particularly on skeleton growth in females, and reduces disease and pathogen resistance of bison population. Therefore, it

is necessary to create conditions to facilitate migration of bison between herds. The BR is situated in Slovak – Polish border, it was suitable space of potential interconnections between neighboring Slovak and Polish bison herds. From that reason the State Nature Conservancy of the Slovak Republic developed and in 2004 implemented a project entitled “The Foundation of wild-living population of European bison in Slovak Carpathian Mountains, Poloniny National Park”. This project aimed to create a stable population of European bison in Slovakia. Five individuals from Italy, the Netherlands and Switzerland were imported in June 2004 and on December 10th, 2004 were released into the wild. Seven municipalities with 3,500 inhabitants were evicted in connection with construction of water reservoir Starina on the river Cirocha. These historical event indirectly caused the formation of big depopulated area, where could be realised the project of restoration of the European Bisons to the wild.

Sustainable management of each population is key to survival of the species on a global scale. From the first moment, actors of local community have participated in the project. The Administration of BR hired out the plots from landusers, acclimatisation enclosure was built on these plots. Forest and Agriculture Land Owners Cooperative Ruske received hire charges for several years. Local hunting associations provide winter supplemental feeding in time of the need for better condition of the European Bisons individuals. This action is financed by Administration of BR. The policy of BR is paradigm that activities in regard to management of European Bison have to be beneficial to local stakeholders. As the outcome of this idea is that European Bison is accepted by them. The European Bison, which live in the wild nature only in seven countries of the Europe, presents for now underutilized potential product of soft tourism for local people. We've recorded increasing number of people, who have addressed the Administration of BR and interested in watching bisons in the wild and want to



Figure 6 : New touristic infrastructure and seed money actions were realized in BR by a grants of Swiss funds and Norway funds

photograph them. The Administration of BR has given to local hunting association the opportunity to provide guided tour for applicants, who want to see bisons and pay charge for this service. There is the big potential for this product of soft tourism in this area of BR, because hunting associations have also cottages in the forests and may offer complete service with accommodation. Everything in the nature is closely connected. Nowadays there are 35 individuals of the European Bison in the BR. The European Bison as big herbivore ruminant regulates succession of vegetation on abandoned land in the BR. Thus bison creates different conditions of habitats for fauna and flora in the landscape and contributes to increasing of biodiversity. For example, in the period 2011 – 2013 research on spider fauna was carried out in non-forest habitats of the evicted area of the Horná Cirocha Catchment in the Poloniny National Park. Totally 234 spider species and 25 families were obtained during research period. From identified spiders, 38 species are listed in the Red List of Spiders of Slovakia of different threat category. *Micaria coarctata* (Lucas, 1846) is new species for the Slovak spider fauna. Of course, the non-forest habitats of the evicted area are managed not only by bisons and other herbivore, but also using application

programme of subsidies from European Union.

The BR face the whole range of difficulties and threats naturally connected with change, despite this fact the BR can be regarded as 'space of hope'. The space, where nature protection entails finding optimal synergies between nature and landscape protection, the regional economy and the other interests of local actors.

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