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AND NATURAL HABITATS

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**REPORT
OF THE VISIT OF THE INDEPENDENT EXPERT
TO THE CARPATHIAN BIOSPHERE RESERVE
(Ukraine)**

17 June 2021

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INTRODUCTION

This assessment was carried out through video conference on 17 June 2021, by me, the assessor Bev Nichols (independent expert, EDPA Group of Experts, UK), and Marc Hory (Project Manager, Emerald Network and EDPA, Bern Convention). Owing to the ongoing Covid-19 pandemic, travel between the assessor's country and Ukraine was not possible, and so the assessment took place under the interim arrangements agreed by the Group of Specialists on the European Diploma in 2021. This involved a single day of virtual meetings between the assessor and participants in Ukraine, mostly involving a simultaneous translation between Ukrainian and English.

It would be difficult enough to adequately assess this large and complex site within the two days normally allocated for face-to-face meetings and site visits for European Diploma assessments, but attempting the same feat via video -conference, on a site which this assessor has never before visited, certainly exercised the powers of imagination. Given these constraints, this report may not truly represent the current situation in the Carpathians Biosphere Reserve, and where there are errors, I trust that my Ukrainian colleagues will forgive me (and correct me gently).

I am immensely grateful to all of the participants in Ukraine (listed in Annex 3), who shared their time, their views and their expertise during the appraisal, and rose magnificently to the challenge of trying to convey something of this marvellous place, via computer screen, at a distance of 2300km.

In addition to the video conference, I used the following resources to report on the Carpathians Biosphere Reserve Diploma site:

- Application dossier for the candidacy of EDPA status, 1996
- EDPA on the spot appraisal experts' reports, 1997, 2001, 2011 (the 2007 report was unavailable)
- EDPA Annual Reports on the CBR 2016 – 2021
- Carpathian Biosphere reserve website ([Carpathian Biosphere Reserve \(nature.org.ua\)](https://nature.org.ua))
- UNESCO Biosphere Reserves website ([Carpathian Biosphere Reserve, Ukraine \(unesco.org\)](https://unesco.org))
- Pearls of Carpathians website ([Carpathian Biosphere Reserve | Pearls of Carpathians](https://www.poc.org))

The most recent recommendations from 2011, and an assessment of the degree to which the managing authorities have met them, are included in Annex 1.

The conclusion of the appraisal is summarised in section 8, with new recommendations and one condition included in Annex 2.

1. EUROPEAN INTEREST

The Carpathian Biosphere Reserve (CBR) covers 58,035ha in south-west Ukraine, in the Eastern Carpathians, close to the border with Romania. It is a predominantly mountainous landscape (from 180m to 2061m above sea level), occupying a central position in the 1500km arc of the Carpathian Mountain range, the third largest mountain range in Europe (see Figure 1).

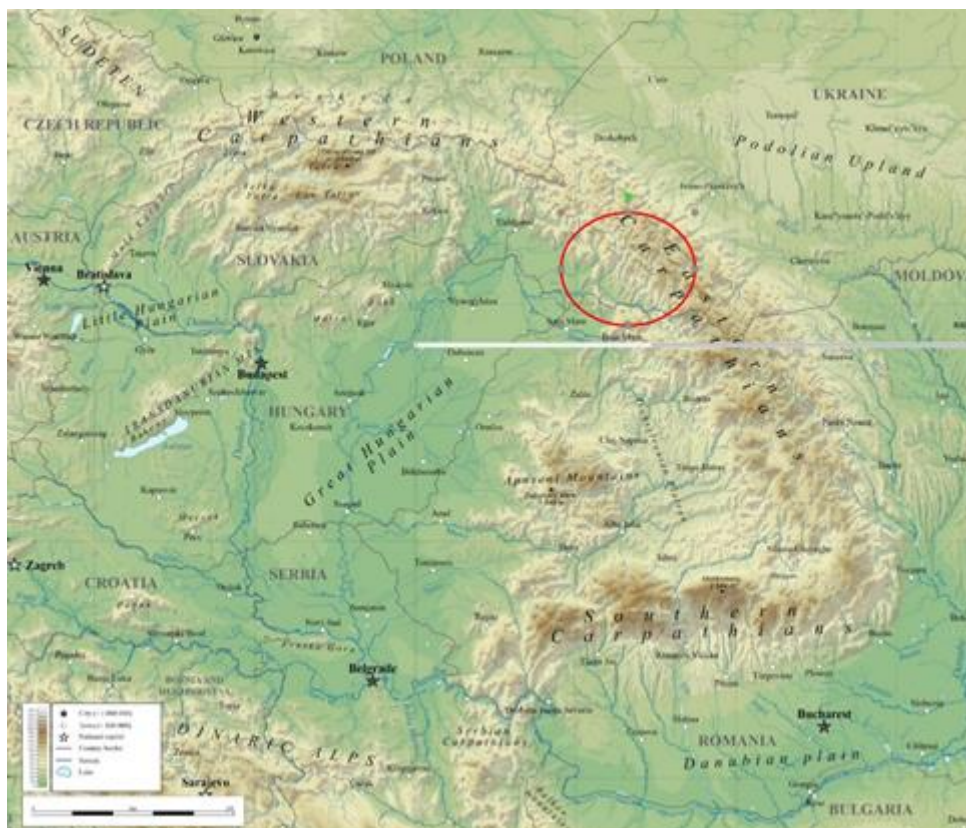


Figure 1: approximate position of the Carpathian Biosphere Reserve (circled) within the Carpathian Mountains (Map source, Wikipedia)

The Carpathian Biosphere Reserve (CBR) is without doubt of exceptional importance for nature in Europe, and for the conservation of biological diversity. Its importance is well documented in previous EDPA appraisals and other literature, with a range of so habitat types supporting an enormous diversity of rare and typical species of the region. In addition to the biological value, the CBR is of outstanding aesthetic and cultural value. What follows is a brief summary of some of the key features of interest:

- The CBR comprises 5 principal mountain massifs, separated by shallow valleys, together with 3 smaller outliers of high botanical value (see Figure 2), which together represent “...all the natural-climatic zones of the southern macro slope of the Ukrainian Carpathians – from the Transcarpathian lowland up to the alpine belt” (UNESCO).
- They include some of “The best-preserved Carpathian ecosystems...” which support many rare and declining plant and animal species (Carpathian Biosphere reserve website).
- Forests dominate the landscape (about 90% by area), comprising foothill oak groves, mountain beech, mixed and spruce forests, and pine-alder mossy forest.

- Most of this forest has had little human intervention, and includes what is thought to be the largest primeval beech forest in Europe at Uholka-Shyrokyi Luh (around 10,000ha).
- Unwooded areas within the forested landscape include subalpine and alpine meadows, and rocky-lichen landscapes.
- 3022 plant species are known, 1353 of which are higher vascular plants.
- 315 vertebrate species are recorded, including 66 species of mammal, 195 bird species, 9 reptile species, 14 amphibian species, and 29 fish species.
- Up to around 15,000 species of invertebrates.
- Large mammals include wolf, lynx, brown bear, red deer, roe deer, wild cat, otter, and wild boar
- 197 plant species (including fungi) and 248 animal species are listed to the Red Book of Ukraine, the European red Lists, and the International Red Book, including several endemic species.
- Breeding grounds of animals protected under the Convention on the Conservation of European Wildlife and Natural Habitats (ETS No. 104) and resting and feeding areas for migratory species.
- Stunning natural upland landscape, largely free of significant pressures from human populations, and which preserves within it culturally significant traditions and ways of life.

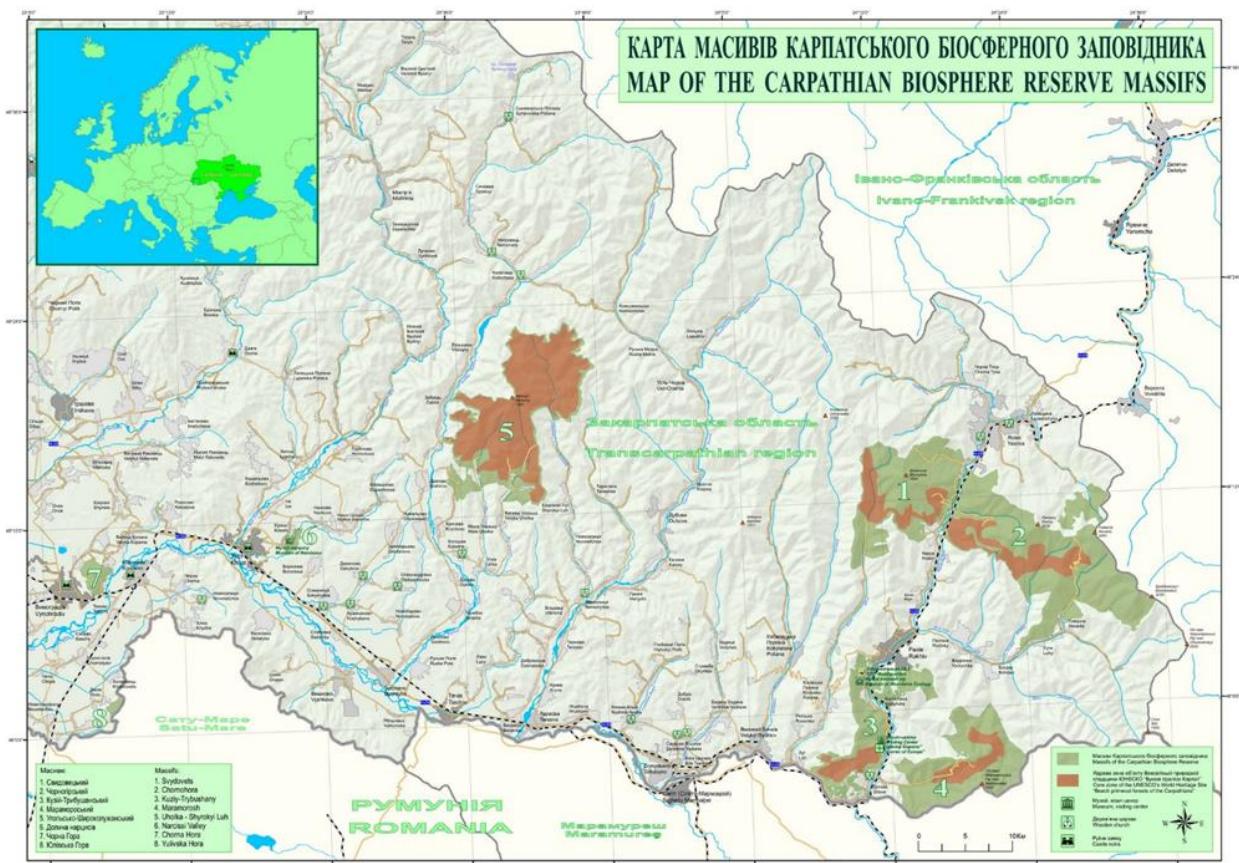


Figure 2: Map of the Carpathian Biosphere Reserve massifs (Carpathian Biosphere Reserve website)

2. CONSERVATION MEASURES

The essential goal of the protected areas is to preserve biological diversity including ecosystem and landscape diversity. The indicators the independent expert will use for assessing the conservation are addressed below.

a) Legal protection status

The Carpathian Biosphere Reserve has a high level of protection, of domestic (Ukrainian) and international protected site designations. Early incremental measures to protect the area began in the early 20th Century, but a major step was in 1968 when the Ukrainian Government adopted the *Resolution on the Formation of the Carpathian Reserve*.

This, and other designations are summarised below.

Year	Designation	Area	Governing body	Details
1968	Carpathian State Reserve	12,600ha	Ukrainian Government	Resolution on the Formation of the Carpathian Reserve
1993	World Biosphere Reserve	38,930ha	UNESCO	
1997	European Diploma for Protected Areas	38,930ha	Bern Convention Secretariat, Council of Europe	
2007	World Heritage Site	20,980.5ha	UNESCO	a component of the "Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe".
2016	Emerald Network	58,035.8ha	Bern Convention Secretariat, Council of Europe	The whole CBR
2019	Wetlands of International Importance	n/a	Ramsar Convention Secretariat (IUCN)	3 wetlands within CBR

In addition, many species of flora and fauna are covered by the international nature conservation conventions that are in force in Ukraine:

- Bern Convention on the Conservation of European Wildlife and Natural Habitats – 284 species;
- Convention on the Conservation of Migratory Species of Wild Animals (CMS, Bonn) – 86 species, and the
- Washington Convention (CITES) – 67 species

b) Boundaries / zoning / buffer zones

The CBR has a well-established functional zoning protocol in place, which aims to regulate land management, farming, recreational and other activities to conserve the key features:

Core area (23,961.2 ha) – natural processes are allowed to progress without human interference, and management activities are forbidden. Human access is strictly controlled, and is limited for example to CBR staff, scientific researchers and academic students.

Buffer zone (15,605.5 ha) - established to minimise the negative impact on the core area, management activity is strictly limited, and the exploitation of natural resources is controlled to limit the economic use of natural resources.

Transition zone (17,398.1 ha) – also described as the “zone of anthropogenic landscapes” traditional agriculture and recreation activities are conducted, but are controlled by a series of rules and regulations. In this zone too, the economic use of natural resources is limited.

Regulated protection zone (1,071.0 ha) – smaller areas within the Biosphere Reserve, designated as Regional Landscape Parks, nature reserves of national or local importance. These include the botanical reserves of national importance Chorna Hora (Black Mountain), Yuliivska Hora (Yuliivska Mountain), as well as the ichthyologic reserve of local significance "Kisva". For each of these areas there is regime of protection and use.

c) Supervision / wardening

There is a well-established ranger service in the CBR, but the appraisal meetings highlighted some ongoing concerns which need to be addressed:

- Improving the training and education of rangers
- Improving the salaries of rangers
- The difficulty of attracting younger people into the profession

In 2021 Funding from the SNPA Project (see below) provided additional funding to the ranger service to purchase off-road vehicles and motorbikes, as well as computers, and other office equipment.

Recommendation 1 - develop a ranger training programme, including where possible entry level apprenticeships for younger people, which provide a strong career base for rangers, and assess salaries to attract and keep suitably qualified staff.

d) The state of conservation of the main species and their habitats, and the effectiveness of existing protective regulations vis-à-vis internal and external threats

With the limitations of the online format of the appraisal, and with such a large and complex site, it was not possible to examine the ecological trends in any depth. Here, however, is a summary of three key issues raised during the appraisal meetings.

i) Climate Change

This poses probably the most serious long-term threat to the current ecological character of the CBR, and for the species which are dependent upon it. Some change effects have already been observed which have been attributed to climate warming, for example a constant increase in the upper forest line (where presumably it encroaches on sub-alpine and alpine grasslands), and the appearance of new pest species in the forest such as found on sweet chestnut *Castanea sativa*. There also appears to be some evidence that the tree species composition of the forests is changing, for example with more oak *Quercus* spp, cherry *Prunus* spp, and birch *Betula* spp.

The impact of climate change on open habitats (e.g. alpine grasslands, rocky lichen habitats) may occur more quickly than in the forests themselves, and with a more obvious impact on the component

species. These effects strengthen the need for greater ecological connectivity through all management zones of the CBR, especially on isolated areas of forest or grassland, as part of a plan of adaptation and mitigation to climate.

Climate change, and shifting weather patterns, also have the potential to impact the viability of the traditional agricultural practices which in part sustain the nature value of the CBR, as well as the economic value of them for local people.

Understanding what the likely impacts are (both positive and negative), through sound monitoring and research, together with the development of a plan for adaptation and mitigation of these impacts, should be a key component of the CBR's scientific and management planning programme

Recommendation 2 – enhance the research and monitoring directed towards understanding the effects of climate change on the CBR (biodiversity, social, economic), develop adaptation and mitigation plans, and identify nature-based solutions to manage the impacts.

ii) Open areas management

Whilst the CBR is most clearly famous for its vast expanse of forest, especially of primeval forest, the open areas with few or no trees are of great ecological value, and support many species which are not found under the shade of the forest canopy. As such they are a vital element of the CBR's importance, but face certain risks.

Firstly, as highlighted above, climate warming will exclude for example alpine species, and favour more thermophilic species. Secondly, agricultural change (see below) appears to be resulting in a reduction in domestic livestock, and with it the demand for hay, which will affect the structural quality of the open habitats (e.g., *polonynas*, and also oak commons), and their ability to support certain species, especially those which require short turf and open bare patches. Thirdly, it is unclear from the appraisal discussions whether there are sufficient wild animals or other natural processes which actively create or maintain open areas, other than agricultural use. For example, it is noted that chamois *Rupicapra rupicapra* and alpine marmot *Marmota marmota* are absent from the Ukrainian Carpathians, going extinct in the 20th Century. These species can be 'keystone species', essential as 'ecological engineers' in creating conditions on which many other species rely.

Recommendation 3 – dedicate research and monitoring on open habitats and their component species, to better understand ecological processes to maintain them, especially in the light of climate change, wild mammal populations and agricultural practices, and consider and implement relevant adjustments to management.

iii) Wilderness management

There is a clear thread of thinking amongst ecologists working on the CBR for a shift towards more wilderness management. This links to an ambition to create a European Wilderness Network, which could encompass the CBR, across the Carpathian Mountains and beyond. The CBR appears to be in an excellent position to contribute to this network, and can bring good ecological practice and evidence to such a project, alongside other European partners. The shift towards wilderness management (sometimes termed 're-wilding'), has potentially significant benefits for the resilience of the nature of the CBR to changes, such as those resulting from climate change or the potentially uncertain future and economic viability of traditional farming.

Several challenges to this shift to wilderness management remain, for example:

- Co-ordination between 46 areas in the network, across 16 countries
- The availability of specialist knowledge and expertise in Ukraine
- The uncertain populations of large mammals, including the absence of some key species e.g. chamois, marmots (see (ii) above)
- Ecological connectivity between the 8 massifs (see Section V)
- Demonstrating the economic benefits of wilderness management to local people
- Addressing potential conflicts between the interests of local people (for example traditional access to mountain grazing)

Recommendation 4 – dedicate research and monitoring to understanding the ecological dynamics of wilderness management, especially the ecosystem function in the absence of traditional farming and forestry practices.

iv) Large mammals

One of the great ecological strengths of the CBR is the fact that it has a range of large mammals, including both carnivores and graziers/browsers. Wolf *Canis lupus*, brown bear *Ursus arctos arctos*, lynx *Lynx lynx* and red deer *Cervus elaphus*, roe deer *Capreolus capreolus*, and wild boar *Sus scrofa* are all present, although as noted above chamois and marmots are both absent, and the absence of elk *Alces alces alces* has also been noted. Nevertheless, this is a more complete fauna of large mammals than is present in many other European countries, and it is to the CBR's credit that these species are still present.

There does, however, seem to be some doubt over the actual size of the populations of these species, and what the ecological significance of these population trends might be on current and future management of the CBR. During the appraisal meeting, the large mammal populations were described variously as “very low”, “viable”, “increasing [lynx, wolf]”, “declining, possibly due to illegal hunting [brown bear]”, and “of no concern”, by different attendees at the appraisal meeting.

Whilst some monitoring is undertaken, one attendee noted the difficulty of monitoring these sometimes elusive, mobile species, and reported that the monitoring methodologies have been adapted to make them more reliable. However, it does appear that the monitoring methods and consistency of reporting needs to be addressed, together with improving the understanding of the desirable population levels both for the conservation of the species themselves, but also of their role in supporting the wider biodiversity value of the CBR.

Recommendation 5 – review the monitoring methodologies for large mammals, prioritising the more at-risk carnivores, to achieve reliable estimates of species populations; review knowledge base of the ecological role of the large mammals in the CBR, and consider optimum populations to maintain the coherence of the CBR.

e) Land-use planning

This topic was not specifically covered during the appraisal, but one particular issue was highlighted. This is the development of winter ski facilities on a potentially large scale, which bring employment and tourist income to the area, but can also cause significant ecological disruption, both during their construction and through the course of the operation.

A large ski resort at Drahobrat, which directly borders the CBR, has been actively developing over the last 30 years, but is not currently expected to expand.

There is however a proposal to develop a very large resort in the Svydovets mountain range, within the Carpathian Mountains, but outside of the CBR itself. Discussions and legal procedures regarding the approval of the location, scope, scale and other matters are currently underway, but it is not thought that the development will be completed in the near future. The CBR authorities have expressed their position to the local authorities to ensure that environmental aspects are factored into the decision-making process.

Recommendation 6 – continue to make representations to the relevant authorities to ensure that the environmental impacts of the proposed ski resort in the Svydovets mountain range, including any potential effects on the CBR, are assessed, prevented or effectively mitigated.

3. MANAGEMENT

a) Management plan for the area (general/specific goals, targets/priorities, duration)

The implementation of the CBR's Management Plan approved in 2019 for a ten-year period is now underway. There does not appear to be an English language version or executive summary, which would help communication of the CBR's aims

b) Institutional arrangements (body responsible for the administration and the management of the area)

The institutional arrangements which govern the CBR are well-established and described in detail in earlier appraisals and annual reports. The CBR employs about 300 people, including 150 rangers, 30 scientists, 11 specialists on ecological education, and 5 specialists on ecotourism and recreation.

c) Financial (budget, levels and trends)

A significant and longstanding part of the CBR's income has been in direct funding from the Ukrainian Government. In 2021 this stood at 85 million UAH (€2.6 million). Such budgets are rarely sufficient to meet all of the potential demands, but whether there is a significant funding gap which affects the ability of the CBR authorities to protect and manage the area was not raised during the appraisal. It is understood that of these core funds, around 95% of the budget meets staff costs, including for scientific research, conservation activities, and ecotourism, leaving little for other needs.

The core grant from the Ukrainian Government is now supplemented by a second source of funding, as a result of the introduction of a local land tax, paid by landowners. This additional funding significantly increases available funding to the CBR authorities, who distribute it to local community budgets. These funds have proved highly effective in supporting projects which benefit both the CBR and the people who live and work there, e.g., for conservation purposes, the maintenance and development of essential infrastructure which supports local agriculture (e.g., mountain roads), or for other community needs (e.g. improvement of waste management facilities). This land tax has also had the related benefit that it improves the perception of the importance of the CBR to the local economy, as a way of attracting inward investment.

A total of 41 million UAH (€1.3 million) has been allocated in 2021, part of which is used for these mutually beneficial projects. The land tax funding in part accounts for the very significant increase in budget for the CBR authorities over the last few years (an increase of 240% since 2017), which is a very welcome trend.

The CBR authorities have further broadened their funding base in recent years, taking advantage of additional project funding in partnership with neighbouring countries and the European Union. One example of this is the Ukrainian-German project "Support to Nature Protected Areas in Ukraine" (SNPA project, 2016-2022) with a total budget of €14 million, and the CBR is one of the areas to benefit from this funding. The main objective of the project is to improve the management and effectiveness of the protected areas as well as to increase or maintain a high level of acceptance of protected areas in local communities.

Recommendation 7 – secure and increase the budget allocation for education, awareness raising activities, scientific programmes, the development of the ranger service, and to support socio-economic priorities in the extended CBR. Continue to develop project-based funding appropriately, ensuring that there is not an over-reliance on project funds to support long term needs.

d) Research and monitoring programmes

One of the particularly impressive aspects of the CBR is its focus on evidence-based conservation, through scientific research, monitoring, domestic and international collaborative research partnerships and international conferences. The CBR authority was described during the appraisal meeting by one attendee as a 'scientific manager'.

The CBR authority features a strong science division with six science departments:

- Scientific research and international cooperation;
- Laboratory of ecological monitoring;
- Botanical laboratory;
- Zoological laboratory;
- Laboratory of forest science;
- Department for scientific and popular publications

Recent highlights of the research and monitoring programme include:

- The CBR is one of the partners from 8 European countries that have participated in the launch of a new project (2021) Life Prognoses - Protection of Old-Growth forests in Europe, funded by the Life+ programme of the European Union. The project aims to establish scientific studies on old-growth forests in Europe, communicate the importance of these forests to professionals and the general public', and how best to protect them;
- The preparation by CBR scientists of around 50 scientific publications, which include articles in leading journals of Ukraine and the world, collections of conference proceedings, monographs and others;
- The annual publication of a scientific journal "Nature of the Carpathians: Annual Scientific Journal of the CBR and the Institute of Ecology of the Carpathians NAS of Ukraine";
- Continuing long-term studies of 1ha forest plots;

- The establishment of 10ha sampling plots of the primeval forest, as part of a global monitoring network;
- Plans to establish a government-funded research centre for beech primeval forests and sustainable development;
- International Scientific Conference: “The 10th anniversary since the inscription of the UNESCO World Heritage Property “Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany”: History, status and problems of the integrated management system (2017);
- International Scientific Conference: “Problems of Mountain Ecosystem Conservation and Sustainable Use of Biological Resources in the Carpathians” (2018);
- Participation in the European Beech Forest Network.

e) Relationship between the body responsible for the area and the other stakeholders (local elected representatives, socio-economic actors, NGOs)

The appraisal discussion revealed a high level of co-operation between the principal stakeholders in the area. Although in protected areas there can be an uneasy relationship between champions for nature (especially the authorities which implement regulations) and the local community, this does not appear to be the case here. In the CBR there appears to be successful mechanisms for engaging with local people, including the twice-yearly Coordination Board, to aid communication and to provide a platform to resolve any differences.

Community representatives expressed strong support for the CBR, and the clear scheme of co-operation between the districts and the CBR authorities, and were satisfied that the CBR is fulfilling its function in this regard. The communities are supportive of the principle of sustainable use, and benefits directly from additional funding from the land tax. This does not mean that there are not now or in the future areas of contention, whether it be about the use of natural resources such as berries or wood fuel, or potential negative perceptions of the expansion of the CBR.

The co-operation agreements with communities were described as ‘hard won’, and certainly as the CBR faces the challenges of future pressures, both natural and economic, this continued co-operation is essential.

4. USES AND SOCIO-ECONOMIC ACTIVITIES

a) Forestry

Forestry management falls under the jurisdiction of the State Forest Resources Agency. There is strong co-operation between the State Forest enterprise and the CBR, with the state forest seen as a shared responsibility. “*Forestry is what brings us together*”, as one attendee said. This close working includes the science underpinning forest management. The State Forest enterprise sees the forests within the CBR as a reference point for management and change, and relies on the scientific knowledge from the CBR to manage its silvicultural practices.

Economically, forestry remains important to the local economy, supporting around 300 people, and presumably more jobs indirectly. Although there is a recognition of the need to broaden the local economy, e.g., through eco-tourism, as discussed elsewhere this is in the early stages of development. The State Forest enterprise is funded by its own self-generated budget, and does not rely on additional

state subsidies. As such, any rapid change in the funding structure of the enterprise, and a reduction in the economic value of forest products, could lead to a loss of jobs which may not easily be replaced elsewhere. It was not raised specifically at the appraisal meeting, but there is potential for a conflict of interest between the need to maintain forest income, and the need to ensure the ecological resilience of the CBR to change.

Change will happen, however, in response to climate change and the need of the CBR and State Forest enterprise to adapt its management accordingly. It was highlighted in the appraisal meeting that a mitigation plan has already been developed, with science input from the CBR, to restore a 'close to nature' species composition, as part of a multi-aged, multi-layered, and multi-species silvicultural approach (i.e., continuous cover forestry, CCF). There was insufficient time in the appraisal meeting to discuss how climate change resilient this plan is considered to be, but the close co-operation between the CBR and State Forest enterprise, gives a good platform for continuing to develop and adapt this plan.

Recommendation 8 - Continue close co-operation between the CBR and State Forest enterprise, especially in adapting to and mitigating the effects of climate change, including economic impacts on the local community.

b) Agriculture

Traditional pastoral agriculture is still practised in the CBR, but it appears to be an increasingly economically marginal activity. The majority of local inhabitants are engaged in small-scale agriculture, usually for family use, and although they live outside the CBR, the reserve and its surroundings provide essential resources including cattle and sheep grazing on *polonynas* (montane meadows), hay meadows, and wood for heating and construction. Farms are typically small, and farmers usually have other sources of income, to the extent that, as one attendee described it, traditional farming is pursued more as a cultural activity than as a business.

The CBR has been vital in sustaining traditional farming for over 50 years, and the link between farming and the maintenance of biodiversity and landscape is a strong one. However, it cannot be taken for granted that traditional farming can continue to survive.

Several positive factors were reported. Firstly, the local community is very supportive of the CBR, and there is good potential for expanding farm-based tourism, which demonstrates the link between traditional farming, food, and the conservation of landscape and biodiversity. Secondly, the land tax has enabled the CBR to fund the infrastructure on which traditional farming relies, e.g. mountain roads. Thirdly, there is a strong sense of place about the Carpathians, which gives marketing opportunities to sell local produce to wider markets, through local food branding. Finally, the CBR management plan provides a solid framework, allowing traditional farming to be sustained and develop in a way which is synergistic with the aims of the CBR.

Against these are some negative trends. The marginal economic value of this traditional farming makes it very vulnerable to change, and abandonment, with the consequent effects on the conservation outcomes in the CBR. Unlike in most other European countries, there is no state funding to subsidise traditional farming to support environmental outcomes, and there is insufficient funding in local budgets (e.g., from the land tax) to do this. Relevant skills also appear to be declining, e.g., in livestock management. These trends are already resulting in reductions in local livestock numbers, and a 70% reduction in cattle in the last 5 years was reported, with consequent impacts on CBR habitats.

It was not clear from the appraisal meeting what mechanisms or initiatives are proposed address this trend. Solutions could be drawn from advocating for agricultural support from central government, further developing ecotourism to support farm incomes, and conservation-led solutions including establishing conservation grazing initiatives, and considering alternatives to farming to drive ecosystem function, e.g., wild or near-wild animals to graze and browse vegetation.

Recommendation 9 – review the viability of traditional farming practices, consider how state funding and other initiatives can support and incentivise traditional farming where it benefits the aims of the CBR (including direct payments to farmers for ecosystem services). Pilot potential options where possible.

c) Tourism / leisure activities

It is estimated that around 35,000 people visit the CBR for recreation and tourism each year. A study has suggested, however, that the carrying capacity for visitors could be as high as 200,000 visitors each year. This indicates that there is considerable capacity for the development of sustainable tourism in the area, beyond the current level.

The distribution of these visitors in the CBR though is very uneven, with the majority (estimated at 70-75%) go to the Narcissi Valley and the Hoverla Mountain (Ukraine's highest mountain, 2061m), and its surroundings. This concentration into 'honeypot' areas can be a valuable aid to managing visitor pressure, but can lead to a) unacceptable impacts on the honeypot areas, and b) other areas missing the economic opportunities for ecotourism.

The expansion of ecotourism obviously carries risks and threats (e.g., to nature, and to the integrity of local communities) as well as opportunities. During the appraisal, the consensus appeared to be that these potential negative effects are identified and managed, which is of great credit to the managing authorities.

Recommendation 10 – develop a strategy for sustainable ecotourism to support the local economy, securing and focussing funding on infrastructure priorities, and creating more opportunities for employment for local people, to reduce outward migration.

d) Awareness raising / information / education resources and activities

The CBR has a comprehensive and well-established programme of outreach activities aimed at the local population, tourists from outside the region, and young people. The stated objectives of this programme are to:

- explain the uniqueness of the Carpathian biosphere reserve and its significance for the conservation and maintenance of the environmental balance in the region;
- raise the general ecological-educational standard of the local population;
- inform the population on the ecological situation in the region;
- form friendly attitudes of the local population towards the reserve and its activities.

The key activities which are used to deliver these objectives include:

- mass media – web-based content, social media, district and regional newspapers and Ukrainian environmental television;

- publications such as the all-Ukrainian ecological scientific-popular magazine "Green Carpathians";
- numerous scientific-popular films, books, booklets, postcards, envelopes, badges etc.;
- Visitor Information Centre, Rakhiv, which includes interpretation of the nature of the CBR, lecture hall, library and ecological trail;
- The Museum of Mountain Ecology and History of Nature Use of the Ukrainian Carpathians, constructed in the 1990s in Rakhiv;
- Environmental education with schools in the region (around 40 events delivered annually to children and their teachers);
- Practical conservation tasks for young people;
- Annual ecological tent camps for young people, including scout groups.

The 2021 European Diploma report suggests that the European Diploma logo is used widely in the CBR, e.g. in reports, presentations, promotional booklets, the reserve's website. This is very welcome and helps to maintain the international significance of the CBR. However, on some available material the logo appears to be absent (including the reserve website), so it would be helpful to check that the logo is as widely used as it could be.

Recommendation 11 – ensure that the European Diploma logo, and the significance of the award, are widely used in all CBR material, events and communications.

e) Cultural heritage

Cultural heritage did not feature strongly in the EDPA appraisal meeting, but other available sources identify the significant importance of the CBR in preserving and demonstrating the cultural heritage of the area, both past and present. These include:

- several ethnic groups of the Ukrainian notable for their unusual mountain-dwelling culture, such as Hutsuls and Lemki;
- the manufacture of local agricultural products, such as milk, dairy cheese, *brynza* (a local sheep's milk cheese), wool;
- local traditions and customs associated with the area, such as the "pasture procession" ceremony, which accompanies the sending of cattle to their summer pastures;
- local vernacular architecture of wooden buildings
- traditional crafts such as wood carving and embroidery
- pre-historic sites, such as late-palaeolithic site of the early humans at the karst cave Molochniy kamin, in the Uholsko-Shyrokoluzhanskyi massif.

As well as being valuable in their own right, the richness of this cultural heritage is a great asset in developing ecotourism in the area.

5. CONNECTIVITY OF THE AREA

Within the constraints of the appraisal meeting there was little opportunity to explore the topic of ecological connectivity in any great depth, but there are three aspects to consider:

- Connectivity within the CBR – the original 8 principal areas of the CBR were relatively discrete units, isolated from each other. With the expansion of the CBR, it is not clear how this

ecological isolation is being addressed, e.g., through the establishment of nature corridors, or the restoration of connecting habitat.

- Connectivity between the CBR and the rest of the Carpathian belt in Ukraine.
- Connectivity between the CBR and with mountain areas in neighbouring countries) – a particular focus over the last 10 years or so has been the establishment of a transboundary biosphere reserve with authorities in Romania, an initiative which is still ongoing, and will be the subject of further discussion in 2022.

Recommendation 12 – develop a strategy for enhancing ecological connectivity within the CBR between the 8 original massifs; examine the ecological connectivity issues between the CBR and other parts of the Ukrainian Carpathians; continue to pursue trans-boundary connectivity, e.g., with Romania.

CONCLUSION

The Carpathian Biosphere Reserve is, without doubt, one of the jewels in the crown of nature in Europe. The fact that it is sustained in its present form is due to the dedication and commitment of the people who care for it and manage it, whether employed directly by the CBR, by the state forest enterprise, or on their own farms or other enterprises, and they are to be congratulated.

The managing authorities have made significant progress in meeting the recommendations made in the 2011 appraisal. The European significance of the Carpathian Biosphere Reserve clear, the management of the site is excellent, and I have no hesitation in recommending a renewal of European Diploma status for a further 5 years.

The new recommendations and one condition included in Annex 2 are aimed at building on the progress over the last 10 years, but now focussing on some of the significant challenges which the CBR will face in the coming years, including climate change, the economic basis for traditional farming and commercial forestry, and the socio-economic issues facing local people who have the privilege of living in a beautiful place, but have to contend with surviving in marginal rural economy.

ANNEX 1 – Assessment of progress in meeting the recommendations of the 2011 European Diploma

<i>No.</i>	<i>Recommendation</i>	<i>Not achieved</i>	<i>Partly achieved</i>	<i>Fully achieved</i>
1	To continue their efforts on providing the CBR with more appropriate funding and to raise more additional funds from external sources as well		✓	
2	To accelerate their diplomatic efforts towards the authorities of Romania, and complete the process of establishing a trans-frontier Biosphere Reserve in the next two or three years coming		✓	
3	To pay more attention to the elaboration and implementation of clear strategies and actions plans for the development of coordinated green activities around the CBR, in close cooperation with the local stakeholders and in line with the presidential guidance (Ref.: Presidential Order dated September 2, 2009, on the conservation and the promotion of the Hutsul culture)		✓	
4	To provide the Council of Europe with adequate and details figures, information and data on the legal regime of wolf (<i>Canis lupus</i>) in Ukraine and its enforcement in the country, especially with regards to the art. 6 of the Bern Convention; the State party should be urged to report on this issue to the Standing Committee of the Bern Convention, at its next meeting, and encouraged to strengthen its efforts on reducing the poaching activities in and around the diploma area		✓	
5	To concretely follow up and give the CBR the capacities to implement the conclusions and recommendations made in the reports on inventory and monitoring, and on challenges and solutions for the management of the CBR, published in 2008 and 2011		✓	
6	To strengthen its cooperation with the local socio-economic stakeholders, including the forest and the tourism sectors, and to develop specific awareness pilot activities targeted on them. Those activities should address the issue of climate change, and promote local adaptation measures to the global warming, including alternative socio-economic measures, like green tourism, carbon sequestration and payment for ecosystem services schemes		✓	

ANNEX 2 – Conditions and Recommendations for the 2021 EDPA Appraisal

Recommendation 1 - develop a ranger training programme, including where possible entry level apprenticeships for younger people, which provide a strong career base for rangers, and assess salaries to attract and keep suitably qualified staff.

Recommendation 2 – enhance the research and monitoring directed towards understanding the effects of climate change on the CBR (biodiversity, social, economic), develop adaptation and mitigation plans, and identify nature-based solutions to manage the impacts.

Recommendation 3 – dedicate research and monitoring on open habitats and their component species, to better understand ecological processes to maintain them, especially in the light of climate change, wild mammal populations and agricultural practices, and consider and implement relevant adjustments to management.

Recommendation 4 – dedicate research and monitoring to understanding the ecological dynamics of wilderness management, especially the ecosystem function in the absence of traditional farming and forestry practices.

Recommendation 5 – review the monitoring methodologies for large mammals, prioritising the more at-risk carnivores, to achieve reliable estimates of species populations; review knowledge base of the ecological role of the large mammals in the CBR, and consider optimum populations to maintain the coherence of the CBR.

Recommendation 6 – continue to make representations to the relevant authorities to ensure that the environmental impacts of the proposed ski resort in the Svydovets mountain range, including any potential effects on the CBR, are assessed, prevented or effectively mitigated.

Recommendation 7 – secure and increase the budget allocation for education, awareness raising activities, scientific programmes, the development of the ranger service, and to support socio-economic priorities in the extended CBR. Continue to develop project-based funding appropriately, ensuring that there is not an over-reliance on project funds to support long term needs.

Recommendation 8 - Continue close co-operation between the CBR and State Forest enterprise, especially in adapting to and mitigating the effects of climate change, including economic impacts on the local community.

Recommendation 9 – review the viability of traditional farming practices, consider how state funding and other initiatives can support and incentivise traditional farming where it benefits the aims of the CBR (including direct payments to farmers for ecosystem services). Pilot potential options where possible.

Recommendation 10 – develop a strategy for sustainable ecotourism to support the local economy, securing and focussing funding on infrastructure priorities, and creating more opportunities for employment for local people, to reduce outward migration

Recommendation 11 – ensure that the European Diploma logo, and the significance of the award, are widely used in all CBR material, events and communications.

Recommendation 12 – develop a strategy for enhancing ecological connectivity within the CBR between the 8 original massifs; examine the ecological connectivity issues between the CBR and other parts of the Ukrainian Carpathians; continue to pursue trans-boundary connectivity, e.g., with Romania.

ANNEX 3 - Agenda and List of Participants, EDPA Appraisal, 17 June 2021

09.00 - 10.30	the Carpathian Biosphere Reserve management (with presentation, up to 10 participants);
10.45 - 11.45	representatives of municipal and regional authorities (up to 5 participants);
12.45 - 13.45	stakeholders (nature conservation NGOs, foresters, farmers, etc., up to 5 participants);
14.00 - 15.00	representatives of the scientific community (up to 5 participants);
15.10 - 16.00	the Carpathian Biosphere Reserve management.

Session 1 and 5 – CBR team.

1. Rybak Mykola – interim director
2. Hamor Fedir – deputy director for research
3. Kuzminskyi Roman – deputy director – naturalist-in-chief
4. Berkela Yuriy – head of the Department for scientific research and international cooperation
5. Pokynchereda Vasyl – deputy head of the Department for scientific research and international cooperation
6. Dovhanych Yaroslav – chief of the Zoological laboratory
7. Kozurak Alla – senior scientist of the Botanical laboratory
8. Yonash Iryna – deputy head of the Department for recreation and sustainable development
9. Kabal Myroslav – chief of the Forest research laboratory
10. Paparyha Petro – chief of the Ecological monitoring laboratory

Session 2.

1. Turok Victor – deputy head of the Rakhiv district state administration
2. Brekhliychuk Dmytro – Secretary of the Executive Committee of the Rakhiv Town Council
3. Babynets Diana – head of the Rakhiv district Council
4. Kopych Ivan – deputy head of the Rakhiv district Council
5. Tomenchuk Dmytro – representative of the Department of Ecology and Natural Resources of the Zakarpattia Regional State Administration
6. Gubko Victoria – head of the department for socio-economic development, international relations and tourism of the Rakhiv Town Council

Session 3.

1. Berkela Ivan – Chairman of the Rakhiv District Society of the All-Ukrainian Association "Hutsulshchyna" (ethno-culture)

2. Jacobi Michel – farmer, Head of the NGO "Conservation of agro-biodiversity of the Carpathian mountains"
3. Rossberg Max – Chairman of the European Wilderness Society
4. Shchoka Iryna – representative of the European Wilderness Society
5. Shkuro Olha – tourist guide, member of the Association of traditional Carpathian highland cheese producers, founder and manager of the Hutsul Bryndzia Cheese Museum
6. Herevych Oleksandr – director of the Zakarpattia Regional Ecological and Naturalistic Centre for Youth
7. Uhryn Andriy – Chief forestry manager of State-owned company "Rakhiv Experimental Forestry Enterprise"

Session 4.

1. Dr. Prof. Shparyk Yuriy – the Vasyl Stefanyk Precarpathian National University (Ivano-Frankivsk, Ukraine)
2. Dr. Brang Peter – Senior Scientist, the Swiss Federal Institute for Forest, Snow and Landscape Research WSL (Switzerland),
3. Dr. Prof. Hobson Peter – Co-Director of the Centre for Economics and Ecosystem Management, Eberswalde University for Sustainable Development (DE), Writtle University College (UK)
4. Dr. Kagalo Oleksandr – Senior Scientist, the Institute of Ecology of the Carpathians of the National Academy of Science of Ukraine
5. Dr. Chumak Vasyl – the Uzhgorod National University (Ukraine)
6. Dr. Kirchmeier Hanns – Managing director, E.C.O. Institute of Ecology (Klagenfurt, Austria)
7. Dr. Prof. Hamor Fedir – deputy director for research, Carpathian Biosphere Reserve