



CONFERENCE PROCEEDINGS 2022

**SALZBURGER LUNGAU & KÄRNTNER
NOCKBERGE BIOSPHERE RESERVE**

12th - 16th September 2022,
Bad Kleinkirchheim (Austria)



Imprint

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Print:

Samson Druck GmbH

Graphics & Layout:

Anna Nocnik, ENN100 Grafik- & Webdesign

Image credits:

Biosphärenpark Nockberge
Trails Angels © Kärnten Werbung (pp. 44)
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Preface

Preface

Sara Schaar provincial councillor

From 12 to 16 September 2022, the EuroMAB Conference took place in the Nockberge Biosphere Reserve in Carinthia with around 150 delegates from 27 countries. It was a great honour and a high distinction that this internationally renowned event, which was held in Austria for only the second time ever, was successfully hosted in Carinthia. The participation of Governor Peter Kaiser underlined the high importance of the conference.

The Nockberge Mountains provided the perfect setting for the conference theme "Cross-border cooperation between societies and generations". Not least be-

cause of their location near the border to Slovenia or Italy, the Nockberge Mountains of Carinthia have always stood for lively cultural exchange between the ethnic groups and regions. This has been underlined for many years by cooperation with *Triglav National Park* in Slovenia and with the *Škocjanske jame* (Slovenia) and *Julian Alps* (Italy) *Biosphere Reserves*.

Biosphere reserves are pioneers in the implementation of the 17 Sustainable Development Goals. They are also unique oases of biodiversity and sustainability - they represent not only nature, but also humanity and our ability to work together. At a time when the effects of climate change do not stop at national borders, transboundary cooperation makes a decisive contribu-

tion to securing the future of our biosphere reserves. Through the MAB programme, sustainable management of our environment does not remain just a buzzword, but is also the focus of research, through which new solutions are continuously discovered. The cooperation between nature conservation, research, education and sustainable management thus makes an important contribution to anchoring biosphere reserves in society.

I thank all EuroMAB participants for coming and for their important inputs. Only together can we preserve the beauty of our nature while promoting the social and economic development of our regions.



Sara Schaar provincial councillor
Biosphere Reserve Officer for Carinthia

Preface

Meriem Bouamrane UNESCO Paris

In these uncertain and turbulent times, it is essential to recall why UNESCO was established more than 75 years ago, and why the Man and the Biosphere Programme remains a highly relevant cooperative platform to tackle the multiple challenges we are facing. The world we are living in needs peace and cooperation, sharing, and understanding. And this cannot be achieved without a shift in our values, in the way that we consider our relationships to each other and to the living world that we are part of. We need a genuine, deep, and shared understanding that we humans are totally interdependent on biodiversity.

Our interdependence with the living world has been revealed by the COVID-19 pandemic. The world is an incredible series of connections, among humans, between humans and other species, between cultures and their various representations of the world. These connections are precious, and we rely on them to maintain a common future to all, a world where humans are living in peace and harmony with and among other living beings.

While many have established theoretical frameworks

on these issues, turning nature into a matter of worldview, a philosophical concern, it is now important to acknowledge that we can respectfully live from nature, in nature, with nature, and as nature by transcending the classical opposition between nature and culture. The great French philosopher Bruno Latour dedicated his life, his work, to inventing, designing, composing forms of societies in which humans and non-humans would live together in harmony, listening to each other, understanding each other, respecting each other.

His work highly resonates with the scientific work of both IPCC and IPBES which continually reminds us that humans are largely responsible for the alteration of terrestrial and marine ecosystems, climate disruption, and that we now have only a few years left to take action.

UNESCO, through its Man and the Biosphere Programme and its World Network of Biosphere Reserves, offers numerous examples of good practices in which humans do not dominate nature but accompany, protect, safeguard, and pass on its potential to future generations. Biodiversity conservation, its sustainable use and the defence of the living in and around us is at the heart of our mission. It encompasses more than 50 years of expertise, experience, and commitment from amazing and passionate people. The people living, working and managing biosphere reserves are the most committed people that I have ever had the chance to meet.

The EuroMAB Network, as the largest regional network of the Man and the Biosphere Programme, is composed of 309 biosphere reserves in 41 countries across Europe and North America. This unique network hosts incredibly committed communities, civil societies, private companies, local and indigenous people, schools and universities, which are genuinely dedicated to make this world a better and more diverse place, for all, humans and non-humans. Biosphere reserves are examples of living territories where inclusive and collaborative governance contribute to preserving this diversity, bringing together all stakeholders to enhance different knowledge systems and practices.

More than ever sharing our experience and valorising our practices and solutions is vital. The 748 biosphere reserves around the world can make a difference in the implementation and monitoring of the newly adopted Kunming-Montreal Global Biodiversity Framework, which should mark a turning point in our approach to our relationships with the living world on Earth. Through ecosystem restoration, conservation, species protection and monitoring, in rural and urban areas, by youth and elderly, biosphere reserves are to contribute in a holistic manner to the 23 targets of the Global Biodiversity Framework.

So let us continue our work, let us bring more people on board to work together, and let us inspire by sharing our values to live in harmony with nature.



Meriem Bouamrane UNESCO Paris
*Chief of MAB Research and Policy Section: Ecology and Biodiversity
Division of Ecological and Earth Sciences
UNESCO*

Introduction

In Carinthia, the southernmost province of Austria, in the tri-point area of Austria-Italy-Slovenia, the international EuroMAB conference took place from 12-16 September 2022. The conference offered an exchange and networking platform for the latest developments in biosphere reserves around the world. The Carinthian part of the Salzburger Lungau & Kärntner Nockberge Biosphere Reserve, hereafter, Nockberge Biosphere Reserve provided the setting for the EuroMAB network meeting in the municipality of Bad Kleinkirchheim. Representatives of biosphere reserves from numerous European and North American countries were in attendance. In the tradition of the EuroMAB conference, biosphere reserve managers and partners, scientists, representatives of the national MAB committees,

UNESCO and partner organisations, and youth representatives were present. About 200 participants from 28 countries took advantage of this impulse for transboundary cooperation and communication on knowledge and experience in sustainable development and species conservation.

The event was organised by the management of the Nockberge Biosphere Reserve, the Austrian UNESCO MAB National Committee, and the Austrian UNESCO Commission. The Carinthian provincial government and the Federal Ministry of Science and Research supported the event. The event was Austria's second occasion to host the conference, following the 2004 event at the Wienerwald Biosphere Reserve.

The motto of the 2022 conference was "Tying cultures. Cross-

border cooperation between societies and generations." This cross-border cooperation between societies and generations, as practised in the Nockberge Biosphere Reserve, is reflected in the close cooperation with the *Triglav National Park* in Slovenia and the *Prealpi Giulie Nature Park* in Italy.



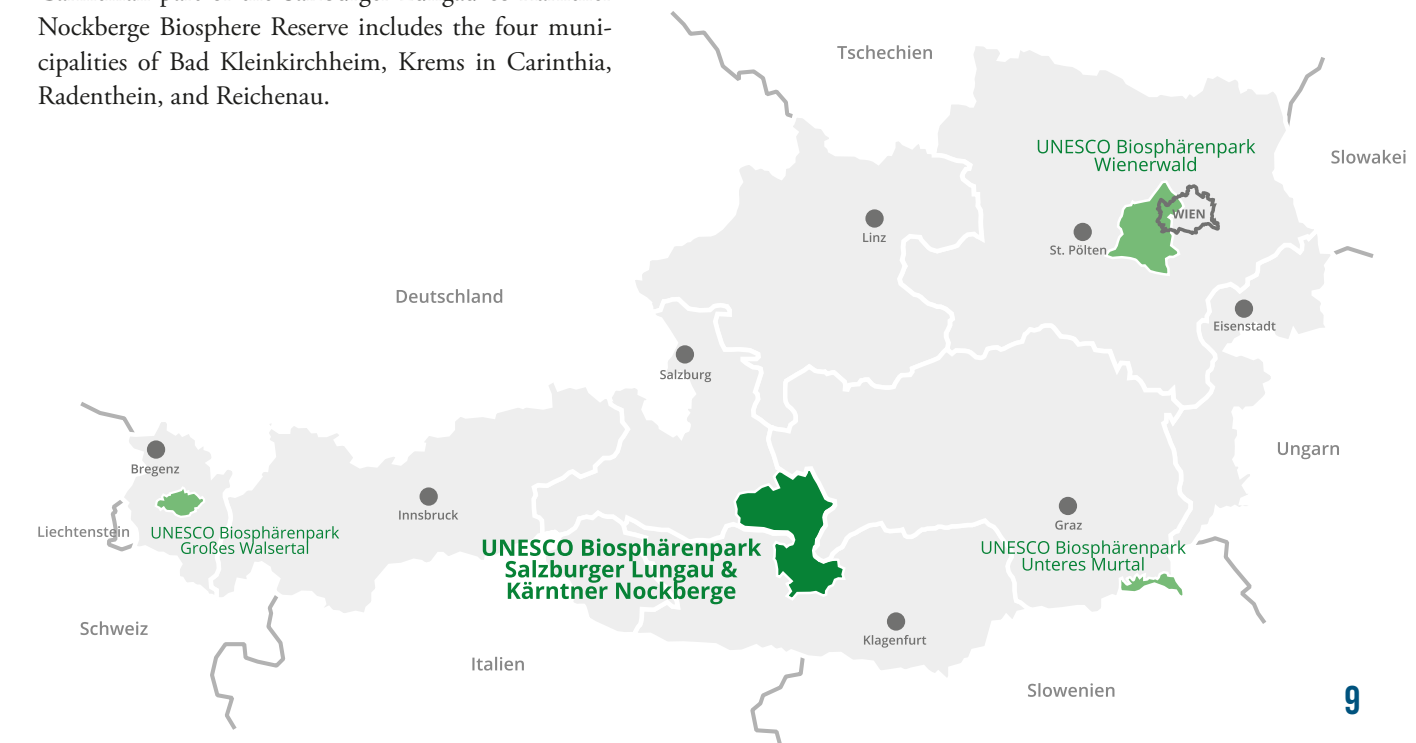
Well-equipped through the conference

Salzburger Lungau & Kärntner Nockberge Biosphere Reserve

The Salzburger Lungau & Kärntner Nockberge Biosphere Reserve is located in the south of Austria in the provinces of Salzburg and Carinthia. This biosphere reserve is characterised by its location in the Eastern Alps and covers an area of 149,421 ha. The total area is divided into nine percent core or nature zone, 33 percent buffer zone and 58 percent development zone. The core zone and a large part of the buffer zone are formed by protected areas of different categories (e.g. Natura 2000 area, landscape protection area), so that the preservation of the natural heritage is ensured [5]. As almost everywhere in Austria, the protected areas are predominantly privately owned. This poses a particular challenge for management.

The Nockberge Mountains of Carinthia belong to the western part of the Gurktaler Alps and comprise a gentle low mountain landscape, which is assigned to the alpine biogeographical region. The landscape of the Nockberge is characterised by traditional mountain farming, forestry and alpine pasture management, gentle ridges and hilltops, as well as deeply cut valleys. This contrasts with the rugged mountain peaks and clear mountain lakes in the Salzburg part of the Salzburger Lungau & Kärntner Nockberge Biosphere Reserve. The elevation of the Nockberge Biosphere Reserve ranges from the lo-

west point, Lake Millstatt at 588 m, to the highest peak, the Großer Hafner at 3,076 m. The geological composition, ranging from limestone to gneiss to metamorphic schists, produces a varied topography. The biosphere reserve is home to an exceptionally high level of biodiversity, including endemic species that find refugia here. The valley regions of the biosphere reserve serve as living and working space for about 31,000 people [5]. The Carinthian part of the Salzburger Lungau & Kärntner Nockberge Biosphere Reserve includes the four municipalities of Bad Kleinkirchheim, Krems in Carinthia, Radenthein, and Reichenau.



1.1 SALZBURGER LUNGAU & KÄRNTNER NOCKBERGE BIOSPHERE RESERVE

The biosphere reserve can look back on a long history of development, see [3, 10]. As early as 1980, the majority of the Carinthian population had spoken out in favour of protecting the area. The provincial government then established a "national park on trial" in 1984 and a national park in 1987. After 15 years of existence, the area required conversion into a biosphere reserve in 2004 due to various changes in the external framework conditions. The conversion was accompanied by a participatory process lasting many years, in which boundaries, zoning, legal foundations, committees, and the contractual nature conservation model were realigned. Simultaneous efforts to establish a biosphere reserve in the neighbouring province of Salzburg led to the establishment of the Salzburger Lungau & Kärntner Nockberge Biosphere Reserve. The area was recognised by UNESCO in

2012. For more than 10 years now, the biosphere reserve has been an established cooperator, partner and project initiator in regional agriculture and forestry, tourism, education, and research. The aim of the biosphere reserve is to act as a model region for sustainable development, working together with the population to promote the preservation and sustainable use of the diverse natural and cultural landscape and the exemplary further development of the region in the sense of the three functions of a biosphere reserve. The work in the Nockberge Biosphere Reserve is based on a management plan that has been in force since 2015 [2] and is accompanied by monitoring (Biosphere Reserve Integrated Monitoring, [6]). The

biosphere reserve focuses on awareness-raising, long-term school cooperations, and intensified scientific research. For example, the annual Geo-Day of Biodiversity has become a fixed meeting point for biological researchers in Austria (e.g. [8]). On the occasion of its tenth anniversary, the biosphere reserve was comprehensively evaluated in 2022 [4] and received a favourable assessment.



Handing over the 10-year evaluation report



1.2 50 years of the UNESCO MAB Programme



UNESCO founded the Man and the Biosphere (MAB) science programme in 1970, providing a worldwide research impetus for the interdisciplinary study of human-environment relations. It serves as a starting point for the creation of scientific and application-oriented activities in the environment of the natural and social sciences that contribute to the long-term preservation of the natural foundations of life and biodiversity. The aim of the MAB programme "is sustainable development in the relationship between man and the environment, the creation of a balance between the protection of biological diversity, the promotion of economic and social development and the preservation of the respective cultural values" [9]. UNESCO biosphere reserves occupy a central position in the MAB programme in this respect, as they are "model regions for sustainable development" that apply these goals in practice at the regional level. Biosphere reserves may contain terrestrial, coastal, and/or marine ecosystems that are representative of their biogeographical region and are important for conservation of biodiversity.

While biosphere reserves are nominated by national governments and remain under the

jurisdiction of the states in which they are located, their global status as biosphere reserves is internationally recognised. The World Network of Biosphere Reserves (WNBR) of the MAB programme, established in 1976, provides a unique opportunity for international cooperation through knowledge and experience sharing, as well as capacity building within the 748 biosphere reserves in 134 countries worldwide [11]. In 1972, the Austrian MAB National Committee was established on the basis of a contract with the Ministry of Science and Research at the Austrian Academy of Sciences to guide the coordination of MAB research in Austria. The 50th anniversary of the Austrian MAB National Committee was highlighted and celebrated by special programme events at the EuroMAB conference in the Nockberge mountains.

1.3 Austrian Commission for UNESCO

The United Nations Educational, Scientific and Cultural Organization, headquartered in Paris, ensures with the respective National Commissions the presence of UNESCO in the respective member states. Cooperation between global and state UNESCO commissions enables forward-looking involvement of civil society. The Austrian Commission for UNESCO was established on 14 September 1949 following Austria's accession to UNESCO in 1948. The commission within Austria acts as UNESCO's coordinating and liaison body. The core tasks of the Austrian National Commission include the advisory function for the federal and provincial governments and other competent bodies; cooperation in the implementation of the programmes; public relations work on UNESCO topics; and the networking of institutions, specialist organisations, and experts with UNESCO.

The year 2022 was characterised by two outstanding anniversaries for the Austrian National Commission. First, the UNESCO World Heritage Convention, the most important international convention for the protection of the world's unique cultural and natural

sites, celebrated its 50th anniversary. Second, the Republic of Austria ratified this Convention 30 years ago and thus committed to comply with its objectives. In Austria, 12 sites of outstanding and unique value are currently protected by UNESCO and thus contribute significantly to the Sustainable Development Goals of the United Nations within the framework of the 2030 Agenda [9]. This also includes Austria's first natural World Heritage Site, which is dedicated to the ancient beech forests and primeval beech forests of the Carpathians and other regions of Europe.

Conference programme

The 2022 conference kicked off on 12 September with a reception hosted by the Province of Carinthia in the "Nock-In", a mountain restaurant featuring an impressive view over the biosphere reserve on the Brunnachhöhe, nearly 2,000 m above sea level. On 13 September, the official conference opening took place with keynotes by numerous renowned speakers. The conference programme contained new approaches both in the handling of the workshops and regional excursions, as well as through convening a distinct youth programme financed by the Austrian UNESCO Commission. The youth programme is described in more detail in chapter 4. Special attention was paid to aspects of sustainable mobility and catering throughout the entire conference, as numerous local stakeholders were integrated into the planning process. The goals of this resource-saving conference were advanced by the innovative poster exhibitions for the presentation of the participating biosphere reserves and institutions, as advertising material of individual organisations was deliberately avoided.



The social programme was capped off with the conference dinner at Landskron Castle on the occasion of the 50th anniversary of the Austrian UNESCO Commission, and the traditional *Ethnic Evening* with the presentation of local products from all biosphere reserves. The figure below gives a summary of the programme including the pre- and post-programme of the conference:

EUROMAB CONFERENCE PROGRAMME								
	Saturday 10.09.22	Sunday 11.09.22	Monday 12.09.22	Tuesday 13.09.22	Wednesday 14.09.22	Thursday 15.09.22	Friday 16.09.22	Saturday 17.09.22
Morning	“Almabtrieb” Festival in Bad Kleinkirchheim	On the road with a BR ranger	Arrival	Official opening	Workshops	Workshops	Conference re- view (e.g. session chair brief reports) and closing	Post-event Tour
Afternoon			Youth preparatory meeting	Plenary presentations			Start of the post- event tour	
Evening		Arrival of youth forum partici- pants	Get-together in the panorama res- taurant Nock-In Reception by the Provincial Government of Carinthia	Conference dinner at Landskron Castle		"Ethnic Evening"		

Overview of the conference programme

2.0 OPENING AND KEYNOTES



The official opening of the conference took place with welcoming words by Meriem Bouamrane (MAB Secretariat, UNESCO Headquarters, Paris), the Chairperson of the Austrian MAB National Committee Marianne Penker, and the Secretary General of the Austrian UNESCO Commission Martin Fritz. The presentation of the Nockberge Biosphere Reserve by Heinz Mayer was complemented by the overview of the Austrian biosphere reserves by Arne Arnberger, Vice-Chair of the Austrian MAB National Committee.

The introduction was followed by keynote speeches from former Austrian diplomat Valentin Inzko and Gordana Beltram from the Slovenian Ministry of Environment and Spatial Planning. The speakers created an open discussion space for the conference motto "Tying cultures". In his inaugural speech „Tying cultures - with special reference to the Balkans“ Inzko drew a bow from the always attractive

border location of the Carinthian Nockberge mountains to the neighbouring states of Slovenia and Italy, symbolizing the ideal conditions for cultural exchange between ethnic groups and regions. In her speech, Beltram used the example of the five-country *Mura-Drava-Danube Biosphere Reserve* to show how successful cross-border cooperation in nature conservation can overcome decades of political disputes. The following discussion offered representatives of the *Triglav National Park*, the *Karawanken UNESCO Geopark*, the *Julian Alps Biosphere Reserve* and the Carinthian Nockberge area to discuss successful practical examples of cross-border cooperation. The topic was rounded off by the presentation of the "TRANSECTS" project, presented by Pam Shaw and Erik Aschenbrand. The project focuses on cross-border cooperation between Canada, Germany, and South Africa in the field of transdisciplinary education for a change in sustainability.

The panel on the occasion of the 50th anniversary of the Austrian MAB National Committee consisted of its Chair Marianne Penker, Vice-Chair Arne Arnberger, the long-time Secretary General of the National Committee and Austrian representative in the MAB International Coordinating Council in Paris, Günter Köck and Christian Diry from the *Wienerwald Biosphere Reserve*. Outstanding milestones were evident in the diverse research achievements, active participation in coordination, and further development of the international MAB programme [7].



Keynote by Gordana Beltram



Keynote by Valentin Inzko

Opening speech

BY THE SECRETARY-GENERAL OF THE
AUSTRIAN COMMISSION FOR UNESCO MARTIN FRITZ



Ladies and Gentlemen,

On behalf of the Austrian Commission for UNESCO, let me all welcome you most cordially to the EuroMAB Conference 2022. It is already the second time that we have the honour of hosting such an event in Austria. In 2005 the EuroMAB took place in the Biosphere Reserve Wienerwald.

From the very beginning of the MAB programme, Austria was actively involved: 50 years ago, in 1972 – only one year after the programme was founded, the National Committee was established of which the Austrian Commission for UNESCO is a member. We are in close contact, and we are always pleased to actively foster the MAB idea within our scope of possibilities in order to foster environmental protection, the preservation of biodiversity and regional development in Austria and beyond.

Important milestones for the Austrian MAB National Committee were certainly the national criteria catalogue for biosphere reserves in Austria, published in 2006 and revised in 2015, as well as the position paper on the use of renewable energies in Austrian biosphere reserves prepared in 2017 and a guideline for the implementation of the Lima Action Plan published in 2019. Furthermore, the research projects financed by the Austrian MAB National Committee not only result in a series of research reports, but also in a large number of scientific articles in professional journals. In addition, the MAB National Committee produces or (co-)finances numerous books and brochures. A highlight is certainly the special volume organised and financed by the National Committee on the occasion of the 50th anniversary of the international MAB programme with numerous contributions on the topic of "UNESCO Biosphere Reserves in Mountain Areas" in the international journal *eco.mont*.

The committed work of the National Committee and the domestic biosphere reserves in the international MAB family is also honoured internationally. In the last 20 years, Austria has been elected several times to the decision-making body of the MAB programme, the MAB-International Coordinating Council (MAB-ICC), and the coordinator of the OeAW research programmes and now committee member Günter Köck also held the vice-chairmanship of the international MAB programme four times.

I am particularly happy that the conference can take place and that the community can finally meet again, because as you all know it was supposed to take place last year but had to be postponed due to the COVID pandemic.

At a time when the sustainable use of natural resources by humans is increasingly coming into focus, the MAB programme with its more than 700 model regions worldwide is also becoming more and more relevant. The interconnections between people and the environment are at the core of this successful UNESCO programme. This makes meetings as the EuroMAB conference so important, where we can come together in order to exchange and discuss how to strengthen the network and its contribution to the implementation of the Sustainable Development Goals of the UN Agenda 2030 for a better future for all of us.

In this respect, the motto of the conference, "Tying cultures. Crossborder cooperation between societies and generations" also reflects what is at the heart of UNESCO: building peace in the minds of men and women.

UNESCO's goal is to contribute to ensuring peace and security through promoting international collaboration in education, science, culture, and communication respectively information. This is because "a peace based exclusively upon the political and economic arrangements of governments would not be a peace which could secure the unanimous, lasting and sincere support of the peoples of the world, and that the peace must therefore be founded, if it is not to fail, upon the intellectual and moral solidarity of mankind."

As the Secretary General of the Austrian Commission for UNESCO, but also personally, I am more than happy to be here today, as I grew up in Carinthia. I am convinced that the centuries of experience with cross-border cultural relations, the Nockberge region offers the perfect setting for the conference theme, namely the challenges and opportunities of cross-border cooperation between societies and generations.

As Secretary General of the Austrian Commission for UNESCO – the national coordinating mechanism of UNESCO – I greatly appreciate the fact that about 150 participants from 27 countries have accepted the invitation, and I am convinced, it will be an interesting and rewarding conference.



3.0

Workshops

Over two conference days, 13 workshops were offered on current topics and challenges in the management of biosphere reserves. The innovative concept of the workshops included both indoor and outdoor learning opportunities in combination with excursions to regional enterprises, true to the motto: Experience the biosphere reserve on site! The following reports provide a brief introduction to the various workshop topics, their participants, the presented case studies, and the insights gained from the discussions.

The results of the workshops were investigated in greater depth depending on the source material (e.g. report of the workshop chairs, available presentations) and summarised with the support of artificial intelligence (AI) in the form of the software Openai.com. The prompts used were "Write a scientific summary with xxx words:". Depending on the source material, the number of words was adjusted. The result of each prompt was compared with the source material and, if necessary, modified and supplemented with further explanations from the literature. The use of AI served to support the summary of the source material, but could not replace in-depth research on selected topics.



3.1

3.1 Cooperation between biosphere reserves across national and regional borders

EXCHANGE. CULTURE. FORMATS.

In the context of the World Network of Biosphere Reserves (WNBR), this workshop focused on exploring and discussing cooperation and exchange between biosphere reserves as a basic function of a well-established conservation area network. Participants from 13 countries shared experiences from various types of collaborations, including national, international, and cross-border partnerships, in order to reflect on future potentials and challenges. The collaborations covered diverse topics such as ocean literacy, mountain development, youth fora and protection of large landscapes. A partnership portfolio was used to systematically record and describe collaborations between biosphere reserves, considering content, partners, formats and resources.

Several presentations highlighted collaborations throughout the EuroMAB region, including connections with the United States Biosphere Network, focusing on connecting people and nature through webinars, capacity building activities and transboundary youth internships. The example of the transboundary *Mura-Drava-Danube Biosphere Reserve* demonstrated the importance of international cooperation in managing a vast river ecosystem, implementing a governance system and promoting tourism and regional development. The presentation on the *Biosphere for Baltic*, a network of nine areas in seven states, aimed to implement the Sustainable Development Goal 14 (life below water) through learning initiatives such as junior ranger programmes, thematic days and joint publications to foster the dissemination of good practices.

Project-based collaborations were exemplified by the Bio-Cultural Heritage Tourism project, a collaboration of four biosphere reserves in the United Kingdom and France, which aimed to implement effective visitor management measures to cope with visitor pressure, while developing sustainable tourism products. School twinning in the *Wienerwald Biosphere Reserve* showcased collaboration between schools from different biosphere reserves through information exchange and the implementation of a multilingual platform and a game.

The *IBEROMAB* network in Spain, the world's largest national network of biosphere reserves, featured a structured governance system with the MAB National Committee, the biosphere reserve managers' com-

CHAIR: Barbara Engels (Germany)

CO-CHAIR: Michael Jungmeier (Austria)

mittee and a scientific committee. The main responsibilities and tasks of the committees included joint decision-making, management of technical aspects and making policy-relevant recommendations. The network also engaged in joint activities, publications, projects and representation in higher-level networks (e.g. EuroMAB).

CONCLUSION

Building on the short presentations, personal experiences and a guided walk with a ranger, the participants worked out the most important results of the session in small groups. The participants highlighted the value of cooperation in biosphere reserves, emphasizing the benefits of pooling resources, enhancing capacities and fostering joint learning. Diversity was seen as a strength, broadening perspectives and increasing visibility at the international level. Biosphere reserves can address a wide range of topics, particularly in developing sustainable management policies for shared ecosystems. Collaborations extend beyond biosphere reserves, involving NGOs, schools, companies, international organizations, and academia. The importance of cooperation with other UNESCO programs and networks was emphasized, along with other protected areas and networks.

Collaboration formats varied from informal personal contact to formalized collaborations and projects. Resources played a crucial role, with personal commitment being essential. National funding and specific financing instruments are available, including in EU countries. Success relied on a stable core team, shared interests, clear goals and concrete results. Overcoming differences in administrative structures, procedures, and technical standards were necessary. External factors such as crises had an impact on collaborations, but also presented opportunities for new collaborations, even in crisis regions. The workshop emphasized the essential role of collaborations in various formats and topics within biosphere reserves, with further exploration planned.



“COLLABORATION IS THE ESSENCE, THE MEANING AND THE ADDED VALUE OF BIOSPHERE RESERVES. IT MUST BE SYSTEMATICALLY DEVELOPED AND CARED FOR.”

— Michael Jungmaier

PARTICIPANTS

Angelika Abderhalden (CHE), Melissa Bade (USA), Anaïs Baude Soares (FRA), Simone Beck (LUX), Gordana Beltram (SVN), Kerstin Böck (AUT), Markus Böheim (AUT), Christian Diry (AUT), Valeria Furlanetto (ITA), Fausto Giovanelli (ITA), Katharina Gugerell (AUT), Alberto Hernandez-Salinas (ESP), Lars Malvin Korn (GER), Anna Särnblad Hansson (SWE), Gabriel Hirlemann (FRA), Cliff McCreedy (USA), Gaëlle Tavernier (LUX), Miriam Turayová (SVK), Monika Weinländer (AUT), Friedericke Weber (GER)

FURTHER INFORMATION

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3.2

Transboundary biosphere reserves

GOVERNANCE. IDENTITY. PARTNERSHIPS.

The workshop provided an overview on the value and potential of transboundary cooperation and management in addressing contemporary global and regional issues. Keynote presentations on the *Palatinata Forest-North Vosges Biosphere Reserve* (Germany/France) and the *Mura-Drava-Danube Biosphere Reserve* (Austria, Croatia, Hungary, Serbia, and Slovenia) gave insight into successful practical examples. The subsequent group discussions pointed to theoretical and practical aspects of the topic and provided comparison to the results of the workshop on cooperation between biosphere reserves.

During the first part of the workshop, the added values of transboundary biosphere reserves were extensively discussed. Participants highlighted the following benefits: the establishment of a common vision and unified action, integrated management through monitoring plans, the ability to scale up successful projects, effective communication, relationship maintenance, fostering a sense of connectedness and shared identity, the recognition that nature transcends political borders, the ability to overcome political issues, and – last but not least – access to international and national funding. Comparisons with the workshop on cooperation between biosphere reserves revealed similarities in joint learning, broadened perspectives, increased visibility and the recognition of diversity as a value.

Small group workshop discussions explored hindering factors specific to transboundary biosphere reserves. These included language barriers, political factors at various levels (national, regional, local), global crises (such as COVID-19, wars and conflicts, loss of biodiversity), imbalanced resource distribution between countries, local stereotypes, conflicting interests, cultural differences, divergent laws and competencies, bureaucratic challenges, border issues, limited communication, and limited awareness of transboundary initiatives. While some hindering factors can be actively addressed by biosphere reserves, others require attention at different levels, such as political decision-making or global crisis management.

Participants identified several supporting factors for transboundary biosphere reserves, including the ability to address different crises (e.g. energy, migration), clear communication structures, concrete actions, political and ecological mechanisms, active engagement of stakeholders and local communities, and the creation of a common identity. It was noted that some hindering factors can also serve as supporting factors when effectively managed. These discussions highlighted the potential for transboundary biosphere

CHAIR: Friedericke Weber (Germany)
CO-CHAIR: Gordana Beltram (Slovenia)

reserves to generate concrete activities and solutions.

The workshop also explored how transboundary biosphere reserves can contribute to overcoming global challenges. Identifying crises affecting these reserves was the first step in the discussion, followed by general approaches to crisis management with the conclusion “thinking globally and acting across the transboundary biosphere reserve”. The proposed strategies included scientific exchanges, education and mediation, cross-border management, action as a model for problem resolution and identification of crisis as well as solution exchange platforms.

CONCLUSION

The workshop showed the importance of integrating young people into the work of transboundary biosphere reserves. Possible areas of implementation included the following ideas: creating youth employment opportunities through technology, active participation of youth in governance through national committees, emphasizing education and networks, promoting youth ambassadors and "train the trainers" programmes, connecting with existing structures (e.g. scouts), organizing joint cultural events, and ensuring continuous engagement with schools and teachers.

In summary, the workshop showed that transboundary biosphere reserves offer significant opportunities for addressing global and regional challenges through collaboration and management across borders. The importance of addressing global crises and involving young people in shaping the future of transboundary biosphere reserves was emphasized. By working collaboratively, transboundary biosphere reserves can contribute to sustainable solutions and serve as models for future sustainable development.



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“IT IS REMARKABLE THAT THE TOPICS AND CHALLENGES OF THE TRANSBOUNDARY BIOSPHERE RESERVES ARE VERY SIMILAR INTERNATIONALLY. THE CONSTRUCTIVE EXCHANGE AMONG THEM CAN HIGHLIGHT THE CHALLENGES, PERSPECTIVES AND THEIR FUTURES FROM DIFFERENT POINTS OF VIEW, INCLUDING INTERCULTURAL BACKGROUNDS.”

– Friedericke Weber & Gordana Beltram



3.3

Large carnivores in biosphere reserves - challenges and conflicts

BALANCE. DIALOGUE. MANAGEMENT.

The outdoor workshop focused on dealing with large carnivores. A large carnivore is a land-based animal such as a bear, wolf, lynx and golden jackal that hunts and feeds on other organisms. These predators are part of the natural assemblage of species and are returning in many European countries, or are already present as stable populations in some countries. This is mainly due to the strict protection provisions of the European Union directives and reintroduction projects. In many parts of Europe, carnivores have been heavily persecuted and largely eradicated in recent centuries. Their reappearance poses a challenge to society and its differing views on the possibilities of coexistence. The issue is emotional and leads to politicised debates across Europe. However, without basic knowledge of the ecology of carnivores, an understanding between the different interest groups is inconceivable.

In the context of the workshop, the focus was on the wolf, as its rapid population increase is causing considerable discussion in many parts of Europe. The debates may be considered paradigmatic. The current increase in wolf populations is partly based on the improvement of ecological conditions (increase in forest areas and game populations) but mainly on the far-reaching legal protection status. In Europe, the greatest potential for conflict between humans and wolves is most evident in agricultural systems. Especially in alpine pasture management, wolves may threaten livestock production, leading to increased financial and technical expenditure for protection measures. In comparison, the areas of conflict in forestry and hunting are much smaller (e.g. wolves as competitors for hunters, influences on feeding management and associated browsing damage, as well as changes in the behaviour of wild animals). So far, the wolf has only played a subordinate role in discussions on tourism, yet it is discussed as a threat to public safety.

The workshop started with a short morning hike in the biosphere reserve municipality of Kaning. A local famer explained the current challenges of mountain farming. In the discussion, the farmer gave insight into the labour-intensive traditional alpine farming in the Nock Mountains, which he considered to be in danger due to the return of the wolf. In the afternoon, the participants had the opportunity to exchange their experiences in dealing with the wolf in small groups and to discuss possible management strategies and different approaches from diverse European countries.

Another local stakeholder – the chairman of the Carinthian Alpine Farming Association – provided an insight into the current situation of alpine farming and described the fears and concerns of farmers in dealing with the wolf. In mountain areas, where alpine farming of grazing animals is prevalent, the situation remains particularly complex. While financial compensation for wolf damages is appreciated, the main concern is the prevention of such damages, especially in alpine pastures.

The intensive debates showed the conflicting arguments of the involved stakeholders. Proponents of wolf conservation argue for the ecological importance of wolves and emphasize their role in maintaining ecological balance and promoting biodiversity. Wolves are known to control prey populations, which in turn affects the entire ecosystem. Additionally, it was discussed whether wolves can serve as an attraction for wildlife-based tourism, contributing to local economies.

CONCLUSION

The increasing number of wolves in Europe has had both positive and negative impacts on ecosystems, livestock, and human-wildlife interactions. To manage wolf populations effectively, a comprehensive approach involving scientific research, public opinion, and policy decisions is required. Different European countries have developed management plans that aim to balance conservation objectives with the needs and concerns of local communities. However, the hunting of wolves is handled differently across the European Union, despite a uniform legal basis. Biosphere reserves are particularly well suited to promote discussions and develop solutions because they serve as scientifically supported and internationally connected model regions.

Due to the complexity of the topic, workshops and conferences are often organized to facilitate discussions among stakeholders, scientists, policymakers and experts. These discussions aim to explore the ecological, social, and economic aspects of wolf conservation and management, with the goal of finding a balance between conservation efforts and the legitimate concerns of various interest groups.

To stay informed about the latest research, policies, and discussions related to wolves in Europe, it is important to remain up-to-date with the current state of affairs. The ongoing efforts to find sustainable solutions for wolf conservation and management will continue to shape the future of these iconic predators in Europe. Nevertheless, the workshop showed that open dialogue between different stakeholders promotes mutual awareness and understanding of different perspectives.

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3.4

Status of mountain biosphere reserves

COMMONS. DEVELOPMENT. DIVERSITY.

Mountain landscapes are intricate and vulnerable ecosystems due to their verticality, sun exposure, and prevailing winds, which create diverse habitats with elevation-dependent variations. These variations can be observed in the presence of different species and natural features at different elevations. Human activities like over-grazing and natural hazards such as floods, avalanches, glacial lake outbursts, and seismic activities further highlight the delicate nature of mountain environments. Mountains possess significant biodiversity and are essential for conservation efforts.

However, the diverse nature of mountains and the coexistence of economic, social, and environmental aspects pose challenges to biodiversity conservation. It is crucial to recognize that mountains are also home to communities with distinct cultures. In a world characterized by rapid population growth and global change, including climate change, the rational use of mountain resources becomes imperative. Balancing the needs of biodiversity conservation with sustainable development and future-oriented lifestyles for mountain communities is a complex task. The biosphere reserve concept aims to address this objective by promoting the harmonious integration of conservation and sustainable development in mountain regions.

The outdoor workshop started with a drive on the Nockalm Panorama Road through the biosphere reserve with a first stop at lake Windebensee, an alpine lake at 1900 m above sea level. During a short ranger-guided hike, the participants explored the interpretive trail on the topic of Alpine biocoenoses, or biological soil crusts. The next stop included a guided tour in the Karlbade, a 300-year-old spa. Afterward, three case studies of mountain biosphere reserves were presented.

The different strategies for conserving the commons in mountain biosphere reserves were illustrated with examples from the *Appennino Tosco-Emiliano Biosphere Reserve* and *Ledro Alps and Judicaria Biosphere Reserve* in Italy and the *Champlain-Adirondack Biosphere Network* of the US. Here, the commons, i.e. jointly used land or natural resources, play a special role for the income and sustainable development of the communities. Challenges to managing the commons include ownership issues and unsustainable management by the communities. In particular, innovation and the transformability of collective resource management play an important role for future development. Mountain biosphere reserves are characterised by traditional systems of communal land and resource uses. Hence, they could become future experi-

mental sites for innovative sustainable practices of valuing and modernizing the commons.

The second presentation was dedicated to the topic of geoinformation as a means of data collection and to promote approaches of citizen science participation in science. The discussion focused the challenges of dealing with new technologies. The last presentation from the *Galloway and Southern Ayrshire Biosphere Reserve* in Scotland cited in particular the great interest in expanding research on local issues.

CONCLUSION

The workshop served as a platform to present different examples of mountain biosphere reserves from all over the world, to highlight the important roles they play as sites for conserving biodiversity, international scientific collaboration, and sustainable use of natural resources in line with conservation objectives. Organic farming, ecotourism, and the labelling of regional quality products offer significant potential for both mountain communities and environments. Due to the diversity and fragility of mountain ecosystems, mountains serve as exceptional indicator sites in the realm of scientific collaboration for assessing, studying, and monitoring the impacts of global climate change on both mountain environments and the socio-economic well-being of mountain communities.

During the workshop, some primary concerns of mountain biosphere reserves were identified. Concerns were particularly prevalent in certain countries and included isolation, inadequate basic infrastructure, depopulation, and poverty. The participants emphasized the significance of directing investments towards the advancement of innovative technologies that can promote sustainable resource management, productive economic activities, and tourism. Additionally, they emphasized the need for measures to adapt to and mitigate the impacts of climate change.



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3.5

Sustainable agriculture and food in biosphere reserves

AGROBIODIVERSITY. INNOVATION. LOCAL PRODUCTION AND CONSUMPTION.

Agricultural uses have a direct influence on the development of habitats, landscapes, and biodiversity, in both positive and negative ways. Without a doubt, sustainable agricultural practices are the basis for the preservation of cultural landscapes, diverse (agricultural) ecosystems, and ecosystem services. In biosphere reserves, there are therefore many initiatives and opportunities in this direction. Producing marketable products and services remains a challenge. The cultural diversity of a region, the tacit knowledge of traditional uses, "old" crafts, and forms of cooperation are essential foundations. However, these must be brought together with the demands of a changing society, with market knowledge, and with new business models and modern technologies. Biosphere reserves offer good conditions for this.

The outdoor workshop started in the morning with a visit to a local cheese dairy called “Kaslabn” in the biosphere reserve community of Radenthein. The cheese dairy was originally founded by four local farmers who have now integrated several other farmers into the production. The construction of the cheese dairy is characterised above all by an innovative financing model in which citizens contribute capital, based on the crowd funding approach. The mountain farms in the Salzburger Lungau & Kärntner Nockberge Biosphere Reserve are characterised by their small structures and the resulting need for diversified sources of income. The tour and the discussion showed the high value of regional products, innovative direct marketing, and modern business and financing models.

The tour included a stop at the regional school for agriculture and forestry called “Litzlhof” in Lendorf. This school trains 14-17-year-old pupils for specialised professions in agriculture, as well as an additional focus on household and farm management. The young people thus acquire the technical skills to run an agricultural and forestry business.

Following the school visit and working off a prepared template, participants shared the initiative of their biosphere reserve or institution. The templates were available in a poster session in advance of the discussion. The workshop provided an opportunity to reflect on the efforts that biosphere reserves are making towards sustainability. During the discussion a common understanding emerged of the role that biosphere reserves play in sustainable agriculture. Many actively promote organic farming, circular economy practi-

CHAIR: Catherine Cibien (France)

CO-CHAIR: Anna Agostini (Italy)

ces, and local production.

Several examples presented good practices focussing on preserving cultural landscapes and biodiversity by maintaining or restoring historical practices. Additionally, many initiatives are aimed at adding value to products that were previously considered to be waste materials. Examples include innovative uses of wool for textile production or house insulation, methanation for energy production, carbon storage improvement experiments, and the development of agro-photovoltaic systems.

CONCLUSION

Biosphere reserves are working to enhance the visibility and inspire a sense of pride of committed stakeholders, fostering a sense of belonging and knowledge-sharing. They employ strategies to promote local products through certification and branding, including craft food certification. Building trust and establishing connections with farmers is a high priority through the creation of networks, partnerships, and ambassador programs and by actively involving farmers in the governance of their biosphere reserves.

Biosphere reserves can play a vital role in fostering cooperation and connections between producers, consumers, restaurants, supermarkets, hotels, and guests. They actively engage youth in these processes and promote intergenerational exchanges. Furthermore, biosphere reserves advocate for local products, seasonal, organic and healthy food at various levels, often working with schools to instil sustainability as a daily habit through initiatives like supporting fruit tree orchards, publishing cookbooks, and organizing cooking competitions.

Lastly, biosphere reserves serve as bridges between national and regional policies, funding opportunities, and local communities, effectively linking them and facilitating their access to resources and support.



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“DESPITE NUMEROUS INITIATIVES, RETURNING TO MORE SUSTAINABLE FARMING PRACTICES REMAINS A CHALLENGE IN EUROPE, WHERE THE COMMON AGRICULTURAL POLICY AND THE AUTHORITIES HAVE ENCOURAGED A MODEL THAT IS OFTEN POLLUTING AND DESTRUCTIVE OF ECOSYSTEMS AND RURAL SOCIETY, INCLUDING IN THE BIOSPHERE RESERVES. MAB PROMOTES AN AGRO-ECOLOGICAL TRANSITION THAT IS STILL DIFFICULT TO ACHIEVE. IT IS INTERESTING TO SEE HOW BIOSPHERE RESERVES ARE ADDRESSING THESE ISSUES, ENGAGING LOCAL COMMUNITIES WITH THE AIM OF ENRICHING FOOD QUALITY, IMPROVING HUMAN HEALTH, AND REDUCING ENVIRONMENTAL IMPACT.”

– Catherine Cibien



3.6

Renewable energy in biosphere reserves

PRECONDITIONS. EFFECTIVITY. SUSTAINABILITY.

The aim of the workshop was to explore and discuss the challenges and possibilities related to renewable energy and the potential conflicts that may arise from its use. The areas of conflict include effects on biodiversity, ecosystems services, cultural landscapes, land and property prices, landscape integrity, and food and water security. The goal was to showcase examples of how biosphere reserves can contribute to promoting renewable energy solutions while explicitly addressing the associated challenges. By its very nature, any form of energy production involves interventions in nature and the landscape. Therefore, any possibility to mitigate the exploding energy demand is to promote the best form of energy production. Biosphere reserves should serve as model regions for sustainable development; therefore, testing and evaluation of renewable energy and the promotion of ecologically sustainable energy production fits with this mandate. Appropriate solutions take into account environmental, social, and economic factors, involving local interests and communities in particular.

The first theme of the workshop focused on the opportunities for developing and utilizing micro-renewable energy in local communities, and how biosphere reserves can encourage and support these initiatives. Therefore, the participants visited the local thermal spa in Bad Kleinkirchheim, called Kathrein Therme, which offers geothermal, solar, and biomass energy production. After the visit, two presentations of best practice examples followed. In the *Bliesgau Biosphere Reserve*, a solar cadastre initiative was founded, which supports private homeowners in adapting their solar energy production. The second presentation, from the *Galloway and Southern Ayrshire Biosphere Reserve*, demonstrated an innovative approach to a community owned hydropower plants in a biosphere reserve, highlighting the challenges and needs for sustainable development and implementation.

Many key points emerged from the presentations and visits. These included the importance of reducing energy demand through energy efficiency measures before implementing new energy production initiatives; emphasis on the benefits of decentralized energy generation at the local level; awareness-raising about renewable energy options through workshops and public engagement; the need for a mix of different renewable technologies to suit different circumstances; and the importance of involving stakeholders in discussions and planning to ensure that they benefit from the generated income.

CHAIR: Kari Evensen Natland (Norway)
CO-CHAIR: Ed Forrest (Scotland)

Proposed solutions included the need for biosphere reserves to prioritize energy-saving measures and collaborate with specialized companies in this field. It was suggested that biosphere reserves should engage more actively in discussions about energy use and savings, with a call for greater political involvement to support renewable energy approaches. It was also recommended that biosphere reserves start small with micro-solutions to demonstrate the potential for local communities and to showcase best practices. Additionally, ongoing discussions on renewables are recommended as a recurring theme at EuroMAB events.

The second theme of the workshop focused on whether large-scale commercial renewable energy projects can contribute positively to biosphere reserve objectives, or if there are insurmountable challenges to large-scale projects. Two case studies on the pressure of wind farm developments in biosphere reserves in Norway and Scotland formed the kick-off for the joint discussion. Community involvement in decision-making and community benefit funding were highlighted as important factors. The group emphasized the importance of decentralizing energy production and exploring regional solutions to meet regional energy demands.

Alternative approaches to renewables were also discussed, including biomass utilization for energy production in agriculture, forestry, and agro-forestry, as well as the potential for wave or tidal power in marine areas. It was agreed that new development of unsustainable renewable energy practices are not suitable for biosphere reserves.

CONCLUSION

Proposed solutions to energy development in biosphere reserves included restricting renewable energy projects to the transition areas (at the moment different legal situations depending on the country exist), ensuring that they are sized to fit the needs of the region and align with the individuality of the biosphere reserve. It was suggested that biosphere reserves should engage the community in proposal development. The need to explore new renewable technologies that align with the scale and ethos of biosphere reserves was emphasized, and biosphere reserves were encouraged to advocate for better understanding of their unique selling points among local and national governments.



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3.7

Settlement development, land use, and demographic change in biosphere reserves

CONFLICTS. RESOURCES. VALUES.

Competition for limited land resources has become a significant challenge as various demands and aspirations surpass the available supply in biosphere reserves. The workshop sought to discuss the diversity of this issue in both rural and urban biosphere reserves and to achieve maximum output through the workshop designed with a mix of keynotes and subsequent group work. Land use representing societal and individual values is not fixed, but rather is in constant flux and influenced by what is accepted in society. The convergence of competing values, goals, and interests on a given plot of land often leads to conflicts and disputes. Land use conflicts arise due to changes in the social and physical environment, and politics play a central role in land use planning. These conflicts manifest in various forms and encompass three main dimensions: allocation of finite resources, policy priorities, and standards of environmental quality or human health. More generally, decisions on land uses are public decisions that have impacts on private assets. This leads to high pressure on policy makers and requires effective instruments for planning and transparent decision making. In any case, there are regions in Europe where spatial planning is literally out of control.

To address land use conflicts, responses aim to balance competing interests and achieve the coexistence of compatible land uses, based on political and societal goals. Institutionalized approaches and the diversified instrument of local, regional, and supra-regional spatial planning are employed to mitigate scarcity and potential conflicts. Additionally, informal approaches help map and contextualize conflicts. Traditional land use governance involves public authorities, but it has evolved to include other actors within a broader network.

The workshop was divided into four thematic blocks, which started following the general introduction with a practical presentation on land use conflicts in the *Wienerwald Biosphere Reserve*. After the second practical presentation on modern possibilities of re-use for vacant hotel buildings, the first group work session followed in which the competing land uses and the associated value conflicts in the biosphere reserves of the respective participants were discussed. In the second section, after a short thematic introduction on demographic change and other drivers, the workshop focussed on a group discussion to explore the experiences and impacts of the different biosphere reserves on the topic, as well as possible courses of action for the future. The major crises of the past and present (climate, COVID-19, economic, finance) are proving

to be an aspect, influencing demographic change in rural and urban biosphere reserves. Migration between urban and rural areas is a consequence that requires forward-looking management in biosphere reserves and emphasises their role as places of experimentation and learning.

After a short walk with the ranger to the Kathrein church in Bad Kleinkirchheim, the final thematic block focussed on governance and the role of biosphere reserves in land use. Traditionally, public administration has played a pivotal role in land use planning. However, recent research highlights that other actors, sectors and instruments often exert a "hidden" driving force in shaping land use outcomes. For instance, the real estate sector and interest rate policies can significantly influence land use decisions and patterns. This recognition calls for a broader understanding of the diverse actors involved in land use planning processes. The concluding discussion sought to explore the different practical approaches to action from the biosphere reserves, to identify solution strategies and to define necessary mechanisms for an efficient governance structure for the future.

CONCLUSION

In summary, the success of collaboration and coordination in land use planning depends on the level of institutionalization within a biosphere reserve. Understanding the role of hidden forces and the dynamics of coordination and collaboration is essential for effective land use planning. By recognizing and engaging with a broad range of actors, sectors, and instruments, planners can ensure that land use decisions consider a more comprehensive set of factors and reflect the diverse interests and needs of stakeholders. Additionally, establishing formalized coordination mechanisms and nurturing institutionalization can enhance the efficiency and legitimacy of land use planning processes, leading to more sustainable and inclusive land use outcomes.



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CHAIR: Katharina Gugerell (Austria)

CO-CHAIR: Marianne Penker (Austria)

“THE WORKSHOP PROVED TO BE AN EXCELLENT FORMAT TO IDENTIFY LAND USE CONFLICTS IN THE CONTEXT OF SPRAWL ACROSS BIOSPHERE RESERVES. BASED ON THE INDIVIDUAL EXPERIENCES AND CASES, AND ENRICHED BY SEVERAL INPUT LECTURES, WE DISCUSSED DIFFERENT STRATEGIES AND APPROACHES ON HOW BIOSPHERE RESERVES ARE DEALING WITH DIVERGING USE AND STAKEHOLDER INTERESTS. FROM MY PERSPECTIVE AS FACILITATOR, THE CROSS-BIOSPHERE RESERVE FORMAT SUPPORTED A LIVELY DISCUSSION, EXPLORING COMMONALITIES AND DIFFERENCES ACROSS CASES THAT ALLOWED EVIDENCE-BASED DISCUSSION. IT WAS A VERY REWARDING DAY THAT STIMULATED PEER-TO-PEER SOCIAL LEARNING. “

– Katharina Gugerell



3.8

Mobility in biosphere reserves

ATTITUDE. COLLABORATION. TECHNOLOGY.

Mobility and transportation are major sources of emissions in biosphere reserves, with personal transport alone accounting for a significant portion of total energy expenditures (e.g. 35% of total energy spent on personal transport in the *North Devon Biosphere Reserve*). The reduction of transport-related emissions requires targeted efforts to minimize the need for travel, improve the efficiency of personal transport, and enhance the utilization of public and mass transportation systems. However, the challenges faced in biosphere reserves, often due to their rural and disparate contexts, make the provision of mass transportation expensive or infrequent, leading to convenience issues for users. The mobility requirements of local people (e.g. school and work routes, everyday mobility, supply, etc.) must be taken into account as well as the mobility needs of guests in the biosphere reserve. Usually, the latter is more the scope of the management.

Congestion of traffic is a common problem in biosphere reserves, primarily because biosphere reserves are appealing as tourist destinations. Several case studies presented solutions to address this challenge. The Salzburger Lungau & Kärntner Nockberge Biosphere Reserve implemented a “Tourist Mobility Centre Carinthia” that digitally links the destinations and provides real-time information on transport options and timings. The “Nockmobil”, a taxi-style service, facilitates easy transportation for tourists arriving by train and also caters to their travel needs within the region.

The *Entlebuch Biosphere Reserve* introduced a simple *car-sharing* mechanism called Taxito, which functions as a digital hitchhiking platform, allowing approved users to offer and request lifts to local destinations. Additionally, the *Entlebuch* management developed long-distance routes with baggage forwarding services and connections to public transport hubs, aiming to reduce car dependency.

The *North Devon Biosphere Reserve* implemented various measures to alleviate congestion. This included the implementation of a bike bus to facilitate multimodal travel, a surf bus to transport surfers and their equipment, and power-swapping of fishing boats for tourist trips, enhancing wildlife watching experiences. They also developed a smart app that helps users plan trips to quieter areas of the reserve, avoiding traffic and linking to public transport. The app integrates weather and tide data, walking and cycling routes, and points of interest.

Other case studies highlighted the importance of *park-and-ride* facilities, long-distance cycling and walking routes, conversion of diesel-fueled ferries to hybrid electric technology, and the establishment of community transport systems to reduce reliance on private cars.

CONCLUSION

The discussions and experiences shared by participants emphasized several key lessons. These included the importance of considering transport beyond the perimeter of a biosphere reserve and establishing linkages with external transport systems. Collaboration among stakeholders, including users, transport providers, and tourist destination businesses, was deemed crucial for successful solutions. Focussing on the needs of both locals (locals are the essential target group for a successful transport system) and tourists, ensuring accessible and reliable communication regarding mobility and transportation services, and optimizing infrastructure utilization through dual use (e.g. bus is used as school bus and tourist transportation during school holidays) were also highlighted.

Additionally, strategies to avoid traffic, shift it, and manage it effectively, along with the creation of tourist mobility offers promote sustainable modes of travel. The unique challenges and solutions within each biosphere reserve underscored the significance of sharing experiences and learning from one another. It was acknowledged that expectations and reality might not always align, but efforts to minimize impacts and provide alternatives can enhance the travel experience.

Finally, changing attitudes to normalize public transportation and make slow travel the norm were considered important for sustainable mobility solutions in biosphere reserves. Embracing new technologies is key to this process. The acceptance of innovative means of transport is also based to a large extent on the attitude and perception of the people in the biosphere reserve. Cooperation with universities and innovative research companies can also be a key to success in the mobility sector.

By addressing transport-related emissions and congestion, biosphere reserves can contribute to the reduction of overall emissions whilst promoting sustainable tourism, enhancing the environmental integrity of these unique areas, ensuring a positive experience, and changing awareness of the issue for visitors and locals alike.



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“IT WAS IMPRESSIVE TO SEE THE DIFFERENT REALITIES REGARDING MOBILITY IN THE INDIVIDUAL BIOSPHERE RESERVES, BUT ALSO HOW MANY SIMILARITIES THERE ARE BETWEEN THE BIOSPHERE RESERVES.”
– Annette Schmid

CHAIR: Andy Bell (United Kingdom)
CO-CHAIR: Annette Schmid (Switzerland)



3.9

Biosphere reserves products and services

MARKETS. BRANDS. ENTREPRENEURS.

The outdoor workshop focussed on exploring how organizations can transform their skills into biosphere reserve-related services to achieve autonomy. Topics such as product labelling and *branding* were also discussed. After a visit to the “Kaslabn”, a local cheese dairy in the Salzburger Lungau & Kärntner Nockberge Biosphere Reserve, and a guided walk through the biosphere reserve municipality of Radenthein, the workshop started. Several guest speakers shared their experiences and models, including a comparison of certification systems, landscape-based brands in Europe, the biosphere entrepreneurship model of *Manicouagan - Uapishka Biosphere Reserve* in Canada, a joint communication campaign of 18 German biosphere reserves, and a case study on transition to a social economic model in *Wester Ross Biosphere Reserve* in Scotland.

The workshop encouraged active participation, with participants forming sub-groups after the presentations to engage in reflective practical exercises on the development of biosphere reserve products and services. The interactive group work was underpinned by a template consisting of several key questions that revolved around organizational challenges, strengths, potential markets, and the identification of marketable skills.

In the first step of the framework, the focus is on assessing the challenges facing the organization. This involves a meticulous examination of the degree of financial and political autonomy possessed by the organization, as well as an evaluation of the availability of essential resources necessary for the attainment of its objectives. Moving on to the second step, the initiators are tasked with identifying the inherent strengths of their organization. The primary emphasis is placed on recognizing the team’s expertise, encompassing a range of qualities such as skills, knowledge, and network prowess. The third step delves into comprehending the potential market landscape. Participants are prompted to explore the prevailing needs and challenges within their biosphere reserves. This exercise encompasses a thorough analysis of the existing issues and unmet needs, as well as the currently available solutions. The final work step involves identifying the skill sets and services that are marketable. A critical facet of this phase is defining the value proposition that leverages the team’s strengths to address the identified needs. In addition, participants contemplate the products and services that could effectively tackle the challenges at hand. Furthermore, the potential clients for these offerings are discussed.

CHAIR: Eve Ferguson (Canada)
CO-CHAIR: Ryo Kohsaka (Japan)

CONCLUSION

The conclusions drawn from the workshop highlighted several key points:
Contextual diversity: The workshop emphasized that a "one size fits all" approach does not apply to biosphere reserves, as they operate in diverse contexts with different management structures, legal bases, and funding sources. The presented Canadian business model may not be universally applicable, but it can inspire mind shifts and adaptation.

Shifting from "needs" to "offers of value": Instead of focusing solely on the skills organizations possess, the workshop encouraged considering the skills and services needed by the community. By aligning biosphere reserves’ offerings with the needs of funders and clients, biosphere reserves can demonstrate their value and foster mutually beneficial relationships.

Strategic planning for biosphere reserves with state funding: Even funded biosphere reserves should consider developing strategies to mitigate the potential risks of funding cuts. Exploring successful models from biosphere reserves that are not dependent on government funding can provide valuable insights and inspiration.

Simplifying communication through segmentation: Communicating the complex message of a biosphere reserve can be challenging. Segmenting the biosphere reserve brand into different units with specific functions and target audiences simplifies communication and enhances clarity.

Proposed solutions emphasized the importance of having an action plan or strategy to focus projects, identifying necessary skills and resources, establishing clear communication plans, mobilizing land planners and politicians to limit land grabbing, promoting traditional products, encouraging sustainable actions by various stakeholders, fostering collaborations between charities and supporting companies, and attracting potential investors to support responsible start-ups.

In summary, the workshop provided valuable insights into how biosphere reserve-related products and services can be developed, what challenges arise, and how the challenges can be overcome. The diverse range of shared experiences and models underscored the need for tailored approaches while emphasizing the importance of strategic planning, effective communication, and adaptability in the context of a biosphere reserve.

PARTICIPANTS

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“THERE IS NO „ONE SIZE FITS ALL“ APPROACH TO ADDRESS THE DI-VERSE ELEMENTS OF BIOSPHERE RESERVES. TAILOR-MADE BRANDING AND COM-MUNICATION STRATEGIES, SUSTAINABLE COLLABORATIVE ACTIONS, AND THE CULTIVATION OF START-UPS ARE NECESSARY TO LEVERAGE THE DISTINCTIVE NA-TURAL AND CULTURAL ASSETS, ALONG WITH INNOVATIVE SKILLS, OF EACH BIO-SPHERE RESERVE. THESE EFFORTS AIM TO CREATE SPECIALIZED PRODUCTS AND SERVICES THAT ALIGN WITH THE UNIQUE CONTEXT OF EACH BIOSPHERE RESERVE AND THEIR OFFER OF VALUE.”
– Marianne Penker



3.10

Promoting research in biosphere reserves

BENEFITS. PARTNERSHIPS. TRANSDISCIPLINARITY.

The Statutory framework of the World Network of Biosphere Reserves (1995) highlights research and education as key functions of biosphere reserves. This emphasis on research and educational collaboration has been reinforced in subsequent documents such as the Lima Action Plan (2016-2025) and is frequently discussed within the MAB programme platform.

The morning session started with a brief review on the results of the workshops of the EuroMAB conference in Dublin in 2019. The workshop summary not only highlighted the existing best practices of research in biosphere reserves, but also showed ideas on the mechanisms and challenges to engage scientists in biosphere reserves.

Using the example of the SCiENCE_LINKnockberge, which is decade-long collaboration between two universities and the Carinthian part of the Salzburger Lungau & Kärntner Nockberge Biosphere Reserve, the cornerstones for a living partnership were shown in order to connect the scholarly world with the everyday life in the Nock Mountains. The four pillars of substantive cooperation focus on education, research, development, and the overarching theme of sustainability.

The second part of the morning session took place at the Bad Kleinkirchheim Tourist Information Centre, where participants had the opportunity to get in exchange with two local stakeholders from the tourism sector. The exchange focused on the practice of how research approaches are integrated into local businesses. The discussion emphasised the importance of developing partnerships with universities and think tanks for various topics including sustainable landscape management and visitor management.

The afternoon session started with a review of the international conference on "Science and Research in, for and with UNESCO Biosphere Reserves". This recent event occurred in 2022 at the *Schorfheide-Chorin Biosphere Reserve*, Germany, and was organized by the Biosphere Reserves Institute of Eberswalde University for Sustainable Development. In it, participants discussed the implementation of the UNESCO MAB programme and formulated recommendations for strengthening research, indigenous and other knowledge systems, and partnerships within biosphere reserves. As a result, the Eberswalde Declaration was presented.

CHAIR: Petr Cupa (Czech Republic)
CO-CHAIR: Erik Aschenbrand (Germany)

The subsequent presentations highlighted the challenges faced by society in addressing the biodiversity crisis, climate crisis, and COVID-19 crisis. The need for a paradigm shift towards an integrated "nature and people" approach was emphasized, where knowledge is available at relevant scales for decision makers. Transdisciplinary approaches were considered crucial, involving stakeholders, academic, and indigenous knowledge for catalysing the implementation of the Sustainable Development Goals.

The World Network of Biosphere Reserves is a global network at the forefront of sustainability, providing institutional support, collaboration, long-term infrastructure, and space for sustainability scholarship. Various examples of promoting research in biosphere reserves were presented, including the *Wienerwald Biosphere Reserve* in Austria, which established a scientific board to exchange information on ongoing research projects. The vital role of Mendel University, Czechia, in the stakeholder-based management structure of the *Lower Morava Biosphere Reserve* was presented. In addition, a fruitful partnership between University of Bergen and *Nordhordland Biosphere Reserve*, Norway was mentioned. In France, biosphere reserves were identified as favourable places for action research and participatory science projects, as well.

CONCLUSION

Overall, the workshop emphasized the importance of research, knowledge sharing, training, and education within biosphere reserves. It highlighted the need for stronger partnerships between research institutions, universities and stakeholders. The biosphere reserves were recognized as valuable platforms for conducting innovative sustainability research and bridging institutions for adaptive management and governance.

Participants formulated important ideas on how to promote future research in biosphere reserves. These ideas include integrating research and educational institutions into biosphere reserve management structures; creating shared databases; increasing the visibility of biosphere reserves and the MAB programme in university networks; emphasizing the social and economic impact of biosphere reserve research; fostering cooperation between coordinators, stakeholders, and research representatives; linking joint research goals and funding between biosphere reserve administrations; enhancing research through research policies; interpreting research results for practical implementation; setting clear research goals in consultation with stakeholders; and providing funding and resources for research in biosphere reserves. These initiatives aim to strengthen the research capacity and impact of biosphere reserves in their larger regional context.

PARTICIPANTS

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FURTHER INFORMATION

International conference "Science and Research in, for, and with UNESCO Biosphere Reserves" organized by the Biosphere Reserves Institute of Eberswalde University for Sustainable Development in the Schorfheide-Chorin Biosphere Reserve in 2022.
URL: <https://www.biospherereserves.institute/research-conference>

SCiENCE_LINKnockberge
URL: https://www.biosphaerenparknockberge.at/science_link-nockberge/

Egner H, Falkner J, Jungmeier M, Zollner D (2017) Institutionalizing cooperation between biosphere reserves and universities – the example of Science_Linknockberge. *Journal on Protected Mountain Areas Research and Management* 9(2):77–80. doi:10.1553/eco.mont-9-2s77

“LOGISTICS CAN PRESENT A CHALLENGE FOR COORDINATION OF BIOSPHERE RESERVE ACTIVITIES. THEREFORE, EVERY EXPERIENCE IN PROMOTION OF RESEARCH IS HIGHLY WELCOME. THE DIVERSE GROUP OF THE WORKSHOP PARTICIPANTS PROVIDED A GREAT PLATFORM WHERE EXPERIENCES WERE SHARED THROUGH OPEN DISCUSSION. EVERY PARTICIPANT, INCLUDING MYSELF, HAD A CHANCE TO TAKE HOME AT LEAST ONE NEW IDEA OR USEFUL CONTACT FOR THE IMPROVEMENT OF RESEARCH IN THEIR RESPECTIVE BIOSPHERE RESERVE.”

– Petr Cupa



3.11

Biosphere reserves as living laboratory for combating climate change

ADAPTATION. AWARENESS. NETWORK.

Climate change is fundamentally altering the environmental conditions for biodiversity, but also for human well-being and health. Effects are not only restricted to biosphere reserves. The consequences of climate change are already noticeable: increased heat and drought periods, vanishing glaciers and melting permafrost areas, increasingly heavy precipitation, changes in plant phenology, and the immigration of heat-loving species are just a few examples. The type, extent, and spatial manifestation of climate change impacts strongly depend on the vulnerability of a region, a system, or a field of activity. The aim of the workshop is to jointly think on how adaption strategies in biosphere reserves should be developed and how they can be implemented on the local level.

The outdoor workshop consisted of two parts: a morning session with presentations on best practices and an afternoon session that provided an opportunity for participants to visit Lake Millstatt by boat. After a keynote on expectations in light of the possibilities and capabilities of biosphere reserves, the morning talks focused on the experiences of the participants. Three case studies were presented by representatives from biosphere reserve of the USA, Scotland, and Germany.

To start off, two concepts were presented, namely the new “Resist Accept Direct (RAD)” framework and a socioecological vulnerability assessment. The RAD framework serves as a supporting tool to react to changes in ecosystems and loss of biodiversity. This tool emphasizes the importance of maintaining or restoring ecosystem conditions, allowing autonomous change, or actively shaping new conditions.

Effective educational programmes and communication strategies were examined in more detail by example of the *Galloway and Southern Ayrshire Biosphere Reserve*. Part of the project in the *Southern Ayrshire Biosphere Reserve* included hosting workshops to improve residents’ ability to improve the sustainability of their everyday actions. Completion of the workshop provided certification of carbon literacy to all participants. The initiative serves as a remarkable example of the active involvement and commitment of the local community residing within the biosphere reserve.

CHAIR: Gaëlle Tavernier (Luxembourg)

CO-CHAIR: Johannes Prüter (Germany)

Using the example of the climate adaptation projects in the *Elbe River Biosphere Reserve* in Germany, the need for clear connections between projects and climate change mitigation was highlighted. Continuity in project work is also crucial to avoid stakeholder fatigue and foster positive changes in decision making processes and peoples’ lifestyles within biosphere reserves.

Participants discussed the possibility of strengthening existing thematic networks within the UNESCO MAB programme, e.g. EuroMAB conferences as successful networking events. The focus was on effectively communicating scientific facts related to climate change. The participants, experienced in research and biosphere reserve project coordination, shared concerns about the importance of creating positive behavioural change towards environmental protection through integrated approaches and step-by-step projects. They highlighted the value of tailored messages and strategies for different target groups and emphasized the need to act locally to strengthen existing networks. Living labs were mentioned as a format that can be embedded in local networks and can thus strengthen the acceptance of scientific formats in the local population. Living labs can thereby serve as a bridge to reduce fears about the future. The aim is to build lasting tools for future generations in order to positively influence change towards a sustainable future lifestyle.

The afternoon session included a boat trip on Lake Millstatt, as well as a guided tour through the historical village of Millstatt. This excursion facilitated personal and professional exchanges, allowing participants to reflect on their cultural and professional experiences.

CONCLUSION

In conclusion, the workshop demonstrated the potential of biosphere reserves as learning areas and model regions for climate action. The discussions highlighted the importance of informed decision making, sustainability initiatives, and community engagement. Acting locally and strengthening existing networks were identified as key strategies for promoting positive behavioural change and achieving environmental goals.



PARTICIPANTS

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3.12

Responsible tourism in biosphere reserves

DESTINATION. IMPACT. COMMUNITY.

The aim of the workshop was to share innovative case studies addressing the challenges, opportunities, and future prospects of responsible tourism in biosphere reserves. Visitor management, monitoring, and the crucial need to assess the social, economic, and environmental impacts of tourism in biosphere reserves were main topics of the discussion. The six case studies presented forward-thinking solutions to evaluate visitation and understand the social and economic effects of tourism in biosphere reserves. A key finding from the workshop was the recognition that effective management requires consistent monitoring. It emphasized the urgent necessity of monitoring visitor use to mitigate the negative social and environmental consequences on host communities. The importance of integrating diverse stakeholders' voices in destination management plans and establishing community cooperatives to support tourism in biosphere reserves was also emphasized by participants and presenters. Future ideas for responsible tourism in biosphere reserves may centre around community-focused approaches that benefit both visitors and locals, but also make use of adequate technologies for monitoring, management of visitor flows and marketing.

The first case study dealt with the evaluation of visitation and economic effects of tourism in different conservation areas around the world. The study emphasized the importance of accurately counting visitors, despite the practical challenges to do so. Nevertheless, the study highlighted the need to measure and manage the social, economic, and environmental impacts of tourism, in order to prevent tourism leakage. Precise analysis of visitor behaviours and spending allows for the identification of the economic significance of sustainable tourism, adaptation of tourism strategies to mitigate negative impacts, and maximization of positive outcomes.

The example of the Minett Trail and the unique huts called "Kabaisercher" in the *Minett Biosphere Reserve* in Luxembourg highlighted innovative strategies for developing trail accommodations in an urban setting, based on novel funding and design models for biosphere reserves. The project aimed to create accommodations for visitors by transforming former industrial buildings or other vacant structures along the newly established trail in an urbanized and industrial region.

The case study on community-led destination management in *Wester Ross Biosphere Reserve* in Scotland had the objective to integrate diverse community perspectives and create a shared vision for managing the

destination. The approach involved collaborative management and evidence-based decision-making.

In the *Champlain-Adirondack Biosphere Reserve* the social impacts of tourism were examined, with a focus on the social inequalities and conflicts arising from overtourism in the region. The example highlighted the importance of responsible leadership, incorporating residents' perspectives in tourism planning, and considering a new conceptual model to assess social impacts of tourism.

Two case studies from the *Wienerwald Biosphere Reserve* in Austria, focussing on the monitoring and management of recreational users, highlighted the need to address conflicts arising from high visitor pressure and diverse recreational activities. Tracking and monitoring visitor activities is the key to effectively manage and reduce conflicts in biosphere reserves, as well as ensuring the protection of nature. Finally, an innovative concept of community cooperatives focussed on eco-tourism in the *Appennino Tosco-Emiliano Biosphere Reserve* of Italy.

CONCLUSION

In summary, the workshop demonstrated that accurate measurement of visitor use is crucial for effective tourism management, emphasizing the need for comprehensive planning and stakeholder engagement. Addressing visitor conflicts while preserving the natural and cultural heritage is essential. Digital technologies can enhance environmental education and minimize negative impacts. The importance of creating happy living environments is emphasized, along with the effectiveness of community cooperatives in tourism management. Participants expressed the need for ongoing knowledge exchange and sustainable tourism workshops to share best practices and resources.

"AS CHAIR OF THIS WORKSHOP I PARTICULARLY APPRECIATED THE VARIETY OF THE PROJECTS THAT WE DISCUSSED AND THE CONSTRUCTIVE AND FRUITFUL DEBATES. THEY SHOWED HOW DIVERSIFIED SOLUTIONS FOR RESPONSIBLE TOURISM CAN BE AND HOW IMPERATIVE IT IS THAT WE IMPLEMENT THEM QUICKLY."

– Simone Beck

CHAIR: Simone Beck (Luxembourg)

CO-CHAIR: Kelly L. Cerialo (US)

"WE CONCLUDED THAT RESPONSIBLE TOURISM MANAGEMENT IN BIOSPHERE RESERVES REQUIRES CONSISTENT COMMUNITY INVOLVEMENT AS WELL AS STRATEGIC MONITORING TO DETERMINE THE SOCIAL, ECOLOGICAL, AND ECONOMIC IMPACTS THAT THE INDUSTRY HAS ON A DESTINATION."

– Kelly L. Cerialo

PARTICIPANTS

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3.13

Female bee keepers

CONSERVATION. EMPOWERMENT. ENTREPRENEURSHIP.

Through their pollination, bees contribute to biodiversity, a variety of human crops and food, and thus to securing important livelihoods. Honey bees and beekeeping as leisure activity are becoming more and more popular in rural and urban areas as well. Concern for and about bees is becoming a search for sustainable, "buzzing" alternatives in agriculture, in the city and in human interaction with nature in general.

The workshop started with a visit to Traugott Brandstätter's apiary in Eisentratten, a small village in the Carinthian part of the Salzburger Lungau & Kärntner Nockberge Biosphere Reserve. The beekeeper distinguishes himself by his exemplary knowledge transfer of the beekeeping tradition to the youth, so that the local beekeeping association is constantly growing. In addition, the participants had the opportunity to get to know the Carinthian Beekeeping Association, which consists of approximately 3,500 beekeepers, including 16% women.

The visit to beekeeper Daniel Hölbling in Döbriach on Lake Millstatt extended the participants' insight into the labour-intensive processes of beekeeping. The beekeepers in the biosphere reserve have joined forces and sell the honey under the common umbrella brand "Biosphärenparkhonig".

Several presentations by female beekeepers, who are part of the UNESCO Women for Bees Programme, supported by Guerlain, highlighted the importance of international exchange on this topic. In 2021, UNESCO and Guerlain launched an international entrepreneurship training program specifically for female beekeepers. The program aims to promote women's empowerment and biodiversity conservation. It is currently being implemented in UNESCO biosphere reserves worldwide, with the support of the French training centre, the Observatoire Français d'Apidologie (OFA). The partnership between UNESCO and the LVMH group (LVMH is Guerlain's holding company) aims to support the UNESCO scientific MAB programme and the World Network of Biosphere Reserves.

More than 50 participants per year have the opportunity to learn the theoretical and practical bases of beekeeping during a one-month training course at OFA in Provence, France. Participants experience the organization of a professional apiary and acquire the knowledge to become fully professional beekeeper entrepreneurs.

CHAIR: Ivana Kovačević (Slovenia)

The main focus of the five-year programme is on supporting local and native bees, ensuring their well-being and proper care, and providing education about bees. The ultimate goal of the programme is to empower women's social emancipation through sustainable professional beekeeping activities. Additionally, the programme raises awareness about the crucial role of all bee species as pollinators.

During the workshop, an overview of the current and future activities of the Women for Bees programme was provided. The four presentations of case studies from different biosphere reserves were opened as a success story of a group of women from various French biosphere reserves who underwent beekeeping training in the first year of the UNESCO Women for Bees Programme, supported by Guerlain. Individual examples of experiences in beekeeping from biosphere reserves in Slovenia and Bulgaria enabled knowledge to be gained and good practice approaches to be exchanged. The major aim of the programme is that by 2025, 2,500 hives will have been built within 25 UNESCO biosphere reserves.

CONCLUSION

The workshop highlighted the importance of knowledge exchange and the active promotion of both individual and collective good practices of beekeeping in urban and rural settings. It also showed that the UNESCO Women for Bees Programme, supported by Guerlain, can make a significant contribution to meet the Sustainable Development Goals, as beekeeping provides income for disadvantaged rural populations whilst improving food security in areas where agricultural production is minimal. Participants also emphasized the significance of preserving various ecotypes of bees and their conservation, particularly in the face of climate change.



PARTICIPANTS

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FURTHER INFORMATION

UNESCO Women for Bees Programme, supported by Guerlain
URL: <https://en.unesco.org/themes/biodiversity/women-for-bees>



4.0

EuroMAB youth programme

Young people and young adults are literally the future of UNESCO biosphere reserves and of the MAB programme [1]. Young people look at the world with a new perspective, strive to take new paths, and shape the world of tomorrow with innovative ideas. How can a cooperation between young people and UNESCO biosphere reserves take place shoulder to shoulder? Which topics are close to young people's hearts? In which form would youth become involved in a biosphere reserve? How can they develop and implement their ideas? And above all: How can their engagement be designed so that it is fun for young people to be involved, bringing them personal added value?

UNESCO and the MAB programme have addressed these central questions through development of the MAB Youth Network. Here, young people from all over the world work closely together with the support of the UNESCO Secretariat to bring their perspectives to the MAB programme and the biosphere reserves. At the last world meeting of the network in the Chinese *Changbaishan Biosphere Reserve*, more than 300 participants met to exchange ideas about these possibilities.

In the Nockberge Biosphere Reserve, the management also attempts to actively engage young people between the ages of 15 to 35. This is done within the framework of a youth forum, which has already been held three times. As a platform for active exchange and impulse, the youth forum is intended to be a long-

term feature of biosphere reserve engagement. Regular meetings are envisioned. The aim of the youth forum is to offer youths and young adults the opportunity to actively shape their living and working space of the future.

For the organisers of the EuroMAB conference, it was therefore only natural to motivate young people to participate in the conference and to ensure their active involvement and participation. With financial support from the Austrian Commission for UNESCO, a specific youth programme could be put into practice. Lisa Wolf and Ines Schäfer, E.C.O. Institute for Ecology, led and moderated the EuroMAB youth programme. Nine young adults from Europe and Japan, age 18 to 27 and from different UNESCO biosphere reserves, participated in the conference.

A central element was the development of concrete ideas and activities for their respective UNESCO biosphere reserves, as well as joint reflection on current problems from the perspective of young adults. The participants were invited to record their individual perspectives from their experiences living in a biosphere reserve. Their proposals for change were aimed to improve the attractiveness of the biosphere reserve as a place for young people to work and live. The group developed six ideas and activities, three of which are described in more detail in chapter 4.2. These address characteristic problems in biosphere reserves worldwide, such as brain drain and rural exodus.

4.1

Programme overview

UNESCO biosphere reserves are living model regions for research and sustainable development. This specific mission of biosphere reserves is laid down in numerous documents of the MAB programme, such as the Lima Action Plan. Here, sustainable local solutions for global problems can be proposed and tested. The key question is how to actively involve the local population in this process in order to integrate the basic philosophy of a biosphere reserve into the everyday lives of residents. In the long run, this should create awareness and appreciation for the preservation of an intact natural world within their own living environment.

The EuroMAB conference offered the participants a varied programme with a colourful mix of workshops, discussions, lectures and excursions in the region. The following young adults participated in the programme:

AIGNER Irmgard (Austria), BOUKELMOUN

Séréna Saadia Baya (Luxembourg), CHRISTOFFERS Celine (Germany), KLOCK Melanie (Germany), MAY DONNELLAN BARRACLOUGH Alicia (Norway), NYSTRÖM Hanna (Finland), PROSSER Hana (Luxembourg), REMON Alfred (France), YUKI Issei (Japan).

The youth programme started on 11 September with an evening of welcome and concluded on 16 September with the official end of the conference. The table below gives a detailed insight into the youth programme:



YOUTH PROGRAMME

SUNDAY 11. 09. 2022	
08.00 AM - 06.00 PM	Arrival of the participants
06.00 PM	Evening get-together

MONDAY 12. 09. 2022 - WORKSHOP 1	
Moderation	Lisa Wolf & Ines Schäfer
09.00 AM	Welcome, kick-off and round of introductions
09.15 AM	Programme presentation Presentation of the EuroMAB Network (Günter Köck) Presentation of the Salzburger Lungau & Kärntner Nockberge Biosphere Reserve (Heinz Mayer)
10.00 AM	Presentation of the MAB Youth Programme (Meriem Bouamrane) Presentation of the EuroMAB Youth Network (Jannis Splieth, Mario Benkoč and Alicia Donnellan)
02.00 PM	“Me and the Biosphere Reserve” – interactive introduction to the topic
03.00 PM	Outlook on the programme and work tasks
07.00 PM	Conference dinner in the panorama restaurant Nock-In

TUESDAY 13. 09. 2022	
8.30 AM -04.00 PM	Participation in the EuroMAB Conference
05.00 PM	Conference dinner at Landskron Castle

WEDNESDAY 14.09.2022	
8.30 AM -05.00 PM	Participation in the EuroMAB Conference

THURSDAY 15. 09. 2022- WORKSHOP 2	
9.00 AM	Presentation of the programme Discussion and reflection session on conference participation
11.00 AM	Brainstorming: Ideas and approaches to challenges in biosphere reserves
02.00 PM	Development of concrete individual ideas
03.30 PM	Preparation of the final presentation for Friday 16 September
07.00 PM	"Ethnic evening"

FRIDAY 16. 09. 2022	
9.00 AM -12.00 PM	Participation in the EuroMAB Conference
11.00 AM	YouthMAB presentation of results



Summary WORKSHOP 1

The first workshop occurred on Monday 12 September with a welcome from Nockberge Biosphere Reserve project manager Heinz Mayer, MAB National Committee representative Günter Köck, and Donnellan Barraclough from the *Youth focal point Norway*. Participants were first introduced, and then the programme for the conference week was presented.

After a brief overview of the *Salzburger Lungau & Kärntner Nockberge Biosphere Reserve*, Merieme Bouamrane introduced the core theme of the Forum, MAB Youth. Youth representatives Jannis Splieth, Mario Benkoč and Alicia Donnellan then gave an insightful presentation on the EuroMAB Youth Network. They emphasized the great importance of the 2nd MAB Youth Forum 2019 in *Changbaishan Biosphere Reserve*, China. Worldwide, the lack of youth participation in biosphere reserves emphasises the great need for action to activate youth engagement. Future plans for the EuroMAB Youth Network are focused in many directions. These include recruiting new members, organising training opportunities and conferences, advocating for youth seats on MAB National Committees, maintaining regular meetings and newsletters and electing new focal points for youth. These activities could promote youth participation in the post-2020 Global Biodiversity Framework.

In the afternoon, an interactive workshop on “Me and the

Biosphere Reserve” followed, addressing the participants’ own experiences and challenges in biosphere reserves. In groups of two, participants discussed practical questions about UNESCO biosphere reserves such as: How am I involved in the biosphere reserve? What do I want to do and how can I get more involved? Furthermore, the participants were asked for positive and negative examples of management from the different biosphere reserves, as well as their own experiences and perceptions.

After a summary of the results and conference programme outlook, the youth participants were provided concrete questions to answer during the conference. They were asked to prepare a short summary of their workshop participation. In addition, they were tasked with documenting the event for social media dissemination. The first day of the workshop concluded with a nice dinner event at the panorama restaurant Nock-In.



Summary WORKSHOP 2

The second workshop occurred on Thursday 15 September and was dedicated to reviewing the findings from participation in the EuroMAB conference and the activities of the week. The youth participants presented the summaries of their participation from the following four workshops:

1. Large carnivores in biosphere reserves - challenges and conflicts
2. Status of mountain biosphere reserves
3. Mobility in biosphere reserves
4. Promoting research in biosphere reserves

The round of reflection was the final part of the programme and was aimed for discussion of the participants' experiences, wishes, and impressions of the conference.

In two groups, the youth participants worked on the following topics and challenges for the development of solutions: Appreciation, mobility, youth participation, modernisation of the biosphere reserve concept, living and working place, and tourism. Other issues were also mentioned, including visibility, space for discussion, dissemination of information, visual resources and other useful information, accessibility of funding opportunities, sharing, and reuse.

The first group focused on 'space for meeting and discussion' and developed different ideas for physical spaces, for example self-organised meetings in bars or biosphere-themed cafes, and organised tea parties. Other formats were discussed where residents could interact directly with the biosphere reserve. Examples of this con-

cept included promoting the idea of biosphere reserves at events, hosting educational and cultural activities to pass on information, and awareness-raising activities within the biosphere reserve. Important ideas for inspiration included hosting round-table discussions, developing a biosphere reserve passport for residents allowing easier contact with the biosphere reserve management, and integration by means of tandem partners for underrepresented and youth groups.

The second group collected ideas and solutions to four challenges on "information and funding" for scholarships or projects. To be effective, such information would be easily accessible on a biosphere reserve's homepage. Another topic was "youth return programmes", where new positions and opportunities in the biosphere reserve would be created for youth so that they could be involved in projects. A central theme of this group was local "youth participation", for example through youth rangers, projects, a youth council within the biosphere reserve board, workshops in schools and high schools, and on a global level through better involvement of the EuroMAB youth network, creation of a youth seat in the UNESCO National Committee and EuroMAB Coordination Council.

The final interactive session of the workshop was dedicated to the individual development of concrete ideas and activities to make one's own biosphere reserve more attractive for young people. Examples are presented next in chapter 4.2.

4.2 Results

On the last day of the conference, the youth participants had the opportunity to present their impressions of the event, their developed ideas and activities, and a "Call for Action" in the concluding plenary session. Their presentation of progressive ideas demonstrated the creative potential of young adults and reflected their wishes and needs, as featured in the following discussion.

1. *Returning youth programme*: The departure of well-educated young workers (commonly called "*brain drain*") is a widespread phenomenon in rural biosphere reserves. To counteract this – or to even encourage the opposite phenomenon of brain gain – an attractive working environment is needed. For this purpose, Hanna Nyström from Norway developed the *returning youth programme*. This proposal is designed to encourage young people to return to their respective biosphere reserves after finishing their studies or school. The cooperation of local entrepreneurs and universities within and around biosphere reserves should make it possible for different interest groups to come into contact with each other and thus identify job opportunities. The focus should be on the opportunities and benefits that living in a biosphere reserve can offer to all generations, but especially to younger generations.

2. *Youth project manager*: The lack of training programmes allowing effective management of biosphere reserves is an issue that Hana Prosser from Luxembourg addresses. Her solution involves creating a full-time position for youth project manager. This would create a permanent *junior project manager* position to work on biosphere reserve projects, giving young adults the opportunity to anchor themselves

professionally in their region. The position would be an attractive employment opportunity in a biosphere reserve. In addition, there would be ongoing opportunities for paid internships for young adults.

3. *Biosphere reserve exchange programme*: To retain highly motivated young adults, biosphere reserves worldwide should offer their employees attractive opportunities for further development and promote an exchange of know-how amongst each other. Building on the example of Erasmus and other exchange programmes, Irmgard Aigner from Austria proposed to introduce a work exchange for employees in biosphere reserves. This would make it possible for biosphere reserve employees to swap jobs for a certain period of time and thus gain work experience in another biosphere reserve, expand their language skills, and gain new knowledge for their work processes.

These three examples represent the manifold idea that so much potential lies in the active involvement of youths and young adults. The integration and participation of young people in the EuroMAB youth network also promotes diversity of opinions and provides education on democratic processes. Participation thereby promotes communication between youth, experts, and the public administration, increasing their confidence in political structures.

The "Call for Action" serves as a request to always involve young generations of people in biosphere reserves and MAB matters in the future. This document was signed by all present as a sign of appreciation for the youth and contains the following demands:



"ENSURE REAL, MEANINGFUL AND LASTING PARTICIPATION OF YOUNG PEOPLE IN THE ADMINISTRATION AND MANAGEMENT OF BIOSPHERE RESERVES AND THE MAB PROGRAMME, BY APPOINTING YOUNG REPRESENTATIVES TO PARTICIPATE IN DECISION-MAKING PROCESSES AT LOCAL, NATIONAL AND INTERNATIONAL LEVELS; BY ELECTING YOUNG MEMBERS TO BIOSPHERE RESERVE- COORDINATING BODIES AND COUNCILS, THE MAB NATIONAL COMMITTEE AND REGIONAL NETWORK STEERING COMMITTEES." IN ADDITION, THE SIGNATORIES CALLED FOR: "THE EUROMAB STEERING COMMITTEE TO CREATE A SEAT FOR A YOUTH REPRESENTATIVE TO REPRESENT THE EUROMAB YOUTH NETWORK IN DISCUSSIONS, COORDINATION AND PREPARATION OF THE NEXT EUROMAB CONFERENCE. ... THIS WILL ENSURE REAL AND MEANINGFUL PARTICIPATION OF YOUNG MEMBERS OF THE MAB PROGRAMME IN THE ACTIVITIES OF THE REGIONAL NETWORK AND BEYOND."

In the middle of the EuroMAB 2022

THE FOLLOWING PICTURES GIVE AN INSIGHT INTO THE POSTER EXHIBITION AND SHOW EXCERPTS OF THE EVENT.



Poster display at EuroMAB conference



5.0 IN THE MIDDLE OF THE EUROMAB 2022



5.0 IN THE MIDDLE OF THE EUROMAB 2022





6.0

Closing words & outlook

MARIANNE PENKER

With these closing words and on behalf of the Austrian National Committee, we would like to bring EuroMAB 2022 to a close and take a look toward the future.

The EuroMAB 2022 conference, held in the Carinthian part of the Salzburger Lungau & Kärntner Nockberge Biosphere Reserve and filled with Carinthian hospitality, will have a multi-faceted and lasting impact. In the guest room, in the school, in the local council hall, even in the cheese dairy, representatives of the local population, biosphere reserves, science, youth, UNESCO, national MAB committees and partner organisations have exchanged valuable insights. The innovative on-site workshop formats have promoted the exchange of know-how and experiences on current opportunities and challenges in biosphere reserves. The joint dancing and singing at the Ethnic Evening were undoubtedly a special highlight of the EuroMAB meeting. In particular, the conference motto "Tying cultures. Cross-border cooperation between societies and generations" was emotionally palpable. Biosphere reserves are not only model regions for sustainable development and central places for research and education but also nodes of a culturally diverse global network.

EuroMAB 2022 provided a fitting backdrop for the celebration of the 50th anniversary of the founding of the Austrian MAB Na-

tional Committee. In 1972, Austria was one of the first nations to commit to the thriving coexistence of people and nature under the UNESCO Man and the Biosphere programme. As the National Committee, we are proud that Austria was able to host EuroMAB for the second time and thus contribute significantly to the international exchange of experiences. The numerous positive feedbacks on EuroMAB 2022 show that the participants took valuable insights and new contacts back home to their organisations in North America, East Asia and Europe. Above all, however, we have gained new motivation to continue working for the protection of biodiversity and worldwide sustainable development in the future.

With this in mind, we are already looking forward to the next EuroMAB in June 2024 in the German *Biosphere Reserve Flusslandschaft Elbe*.

We sincerely thank all those involved for their commitment! We congratulate the local organising team on the professional event and the appealing conference proceedings. Let us continue to pursue the vision of a sustainable future together!

Marianne Penker
on behalf of the MAB National Committee

6.0 Closing words & outlook

NOCKBERGE BIOSPHERE RESERVE

It was a great pleasure and an honour for us, the Carinthian part of the UNESCO Salzburger Lungau & Kärntner Nockberge Biosphere Reserve, as such a young member of the biosphere reserve family, to host the EuroMAB Conference 2022.

Biosphere reserves are model regions for sustainable development, where cooperation and communication between biosphere reserves and various stakeholders are in the foreground. This exchange was precisely the focus of these conference days and, in our opinion, was very successful.

We look back on a quite diverse and exciting week. The conference was particularly impressive because of the multi-layered excursions in addition to the very constructive workshops where valuable experiences and knowledge were exchanged. During the excursions, the EuroMAB participants were able to gain a first-hand insight into the life and culture of our beautiful biosphere reserve and had the opportunity to exchange ideas with the local population. We would also like to highlight the EuroMAB youth programme that ran parallel to the conference where future generations had the opportunity to discuss challenges, opportunities and perspectives in biosphere reserves. The

days were rounded out by varied evening programmes, each one being its own special highlight.

Now it is time to thank all those who contributed to making this event what it was - something very special that will remain in good memory. A big thank you goes to the Austrian MAB National Committee and the Austrian UNESCO Commission, as well as to the Province of Carinthia and especially to the regional businesses, the local population and last but not least to the great participants.

It was a great honour for us to organise this renowned event and we are looking forward to seeing you again at the next EuroMaB or in the Carinthian part of the UNESCO Salzburger Lungau & Kärntner Nockberge Biosphere Reserve.

The Nockberge Biosphere Reserve team



EuroMAB 2024

THE NEXT EUROMAB CONFERENCE WILL TAKE PLACE FROM 3-7 JUNE, 2024 IN WITTENBERG IN GERMANY. WITTENBERG IS LOCATED IN THE MIDDLE ELBE BIOSPHERE RESERVE, WHICH IS PART OF THE TRANSNATIONAL UNESCO ELBE RIVER LANDSCAPE BIOSPHERE RESERVE IN GERMANY.



Elbe floodplain near Wittenberg



Exploring the UNESCO Biosphere Reserve Mittelalpe



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Further reading:

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The Nockalm roads leads trough the Salzburger Lungau & Kärntner Nockberge Biosphere Reserve



EUROMAB CONFERENCE PROCEEDINGS 2022 | NOCKBERGE BIOSPHERE RESERVE

