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## Editorial

# Mura-Drava-Danube biosphere reserve: a long way from the original idea to the designation of the world's first 5-country biosphere reserve

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**Abstract:** The UNESCO '5-country biosphere reserve Mura-Drava-Danube (TBR MDD)', recognised by UNESCO in September 2021, connects Austria, Croatia, Hungary, Serbia and Slovenia with their individual biosphere reserves (BRs) and 13 major protected areas along the three rivers Mura, Drava and Danube. It is with a length of 700 km and a size of 930,000 hectares Europe's largest coherent river protected area. This article describes the history of the development of the TBR MDD, also known as 'Amazon of Europe', from the first idea in the early 1990s to the designation of the world's first transboundary BR consisting of five countries in 2021. In addition, the authors identified and discussed some factors which they believe have had a decisive influence on the emergence of TBR MDD.

**Keywords:** Mura-Drava-Danube biosphere reserve; UNESCO; transboundary biosphere reserves; 5-country biosphere reserve; history; river system.

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Arno Mohl studied landscape planning on the University of Natural Resources and Life Sciences, Vienna (BOKU). His thesis provided important information about the ecological importance of the Drava River in Croatia and Hungary against its destruction from planned hydropower dams and river regulation. He is active for the conservation of the transboundary Mura-Drava-Danube area since the idea of a TBR MDD was born in the beginning of the 1990s. He is leading the conservation programme of the Mura-Drava-Danube at WWF Austria and is one of the Austrian delegates to the inter-governmental TBR MDD coordination board.

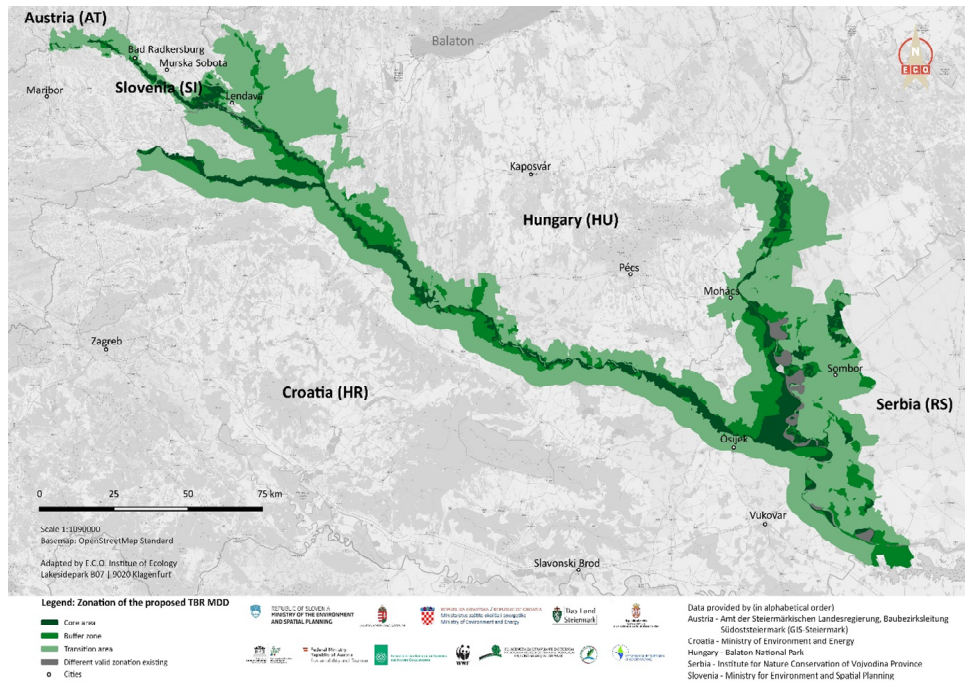
## 1 Introduction

Located in the border area between Austria, Slovenia, Hungary, Croatia and Serbia, the river system formed by the rivers Mura, Drava and Danube connects unique natural areas and is one of the last widely preserved near-natural river landscapes in Europe (Figure 1). The corridor formed by the Danube and its tributaries, the Mura and Drava, forms a unique biotope network that is the habitat for many rare animal and plant species and thus represents the most valuable contiguous river landscape in Central Europe (Mohl et al., 2020).

The extensive floodplains provide perfect habitat for a variety of endangered species. For example, white-tailed eagles (*Haliaeetus albicilla*) and black storks (*Ciconia nigra*) breed in the floodplain forests, the gravel and sand banks of the rivers are home to little ringed plovers (*Charadrius dubius*), common sandpipers (*Actitis hypoleucos*) and the extremely endangered little tern (*Sternula albifrons*), and the natural bank breaks are home to up to 14,000 breeding pairs of the sand martin (*Riparia riparia*) and of the European bee-eater (*Merops apiaster*) and common kingfisher (*Alcedo atthis*). The river system itself is home to rare fish species such as sterlet (*Acipenser ruthenus*), wild carp

(*Cyprinus carpio carpio*) and huchen (*Hucho hucho*). The area hosts the largest density of white-tailed eagles in continental Europe, with over 140 breeding pairs, and is a resting place for more than a quarter of a million waterfowl (Schneider-Jacoby, 1994; Mohl et al., 2009; WWF/EuroNatur, 2009). Furthermore, the floodplains are an important drinking water reservoir for the region, provide efficient natural flood protection and are of great importance as an adventure and recreation area for people. Moreover, the charming landscape has great potential for sustainable tourism (Sturmberger et al., 2021).

**Figure 1** Map of the TBR MDD (see online version for colours)



Notes: The map outlines the core area of the planned TBR MDD in dark green, the buffer zone in lighter green and the transition area in mint. Areas that are designated as core area and/or buffer zones by more than one state party are coloured in grey.

Source: Zollner and Wolf (2020)

## 2 Protection through the Iron Curtain

The Danube with its tributaries is one of the oldest and most important European trade routes and connects not only different cultural regions, but also species-rich natural areas. During the long period of the Cold War between the Warsaw Pact countries and the NATO, with the non-aligned countries of Austria and Yugoslavia in between, the importance of the Danube as a transport route has diminished (Austria-Forum, 2020). During the Iron Curtain period, the sections of the Danube, Drava and Mura rivers located in the border regions were largely isolated for almost five decades and have therefore been spared intensive human use. The political situation thus prevented the construction development of large sections of the Mura, Drava and Danube for decades,

allowing the largely free-flowing rivers to create and change their own beds (Mohl et al., 2009; Schneider-Jacoby, 2012; Schneider-Jacoby and Mohl, 2012). This has preserved a biotope network of islands, steep banks of clay and sand, water arms and riparian forests which is the habitat for many rare animal and plant species.

With the fall of the Iron Curtain in 1989, major political changes took place in Europe. As a consequence, the situation changed very rapidly from the beginning of the 1990s and the countries wanted to change the use of the rivers. Areas that hardly anyone had been allowed to enter for over 40 years were now freely accessible and usable – in many cases with negative effects on nature. For example, some river arms, riparian forests and gravel banks have been significantly damaged by gravel mining and channelisation projects. The most serious threat to the remaining natural river sections is posed by the planned construction of hydropower plants on the Mura and Drava rivers (Mohl et al., 2009).

### **3 Cross-border protection of the Danube, Drava and Mura rivers**

At this point, it should be noted that only the most important BR-related milestones in the long history of the TBR MDD are described in this chapter. A more or less complete list of activities that eventually led to the establishment of the TBR MDD is given in Table 1.

With the fall of the Iron Curtain, the ‘EuroNatur’ Foundation took the initiative at an early stage and started the ambitious project to save the unique river landscape of the Drava in 1990. In May 1993, EuroNatur organised the first international nature conservation conference on the future of the Drava in Kaposvár (Hungary). The aim was to preserve the still largely natural river section of the Drava with its tributary the Mura in its original state. During this conference, which was attended by politicians and nature conservation experts from Croatia, Austria, Serbia, Slovenia and Hungary, the idea of a transboundary BR was born. Starting in 1997, an international working group developed the first concept for a transboundary BR ‘Mura-Drava-Danube’, which was presented to UNESCO for the first time in 1999. Since 2000, the WWF has taken the lead in promoting the international protection of the Mura-Drava-Danube corridor. It organised several international campaigns against large-scale regulation and gravel dredging projects and planned hydropower plants on the Mura, Drava and Danube, which were supported by a broad alliance of local and international NGOs. It also initiated and developed a series of transboundary 5-country EU Interreg projects that continues to this day. The designation of Natura 2000 sites in Austria, Slovenia, Croatia and Hungary, the Drava-Mura Regional Park (Croatia) and the Gornje Podunavlje Nature Reserve (Serbia) in the period 2001–2014, together with the Tikvara and Karadorđevo Nature Parks (Serbia) established in the 1990s, constituted, together with the Duna-Dráva National Park (Hungary) and the Kopački rit Nature Park (Croatia), which had already been established in the 1970s, the basic inventory of 13 individual protected areas for the later transboundary BR (Zollner and Wolf, 2020).

A key event was certainly the agreement concluded in 2009 in the Hungarian border town of Barcs between the Governments of Croatia and Hungary on the establishment of a joint BR ‘Mura-Drava-Danube’. The Austrian Ministry of Environment took this success as an opportunity to prepare a joint 5-country agreement. After several attempts, the time had finally come in March 2011: on the occasion of the Hungarian EU Council Presidency, the joint agreement was finally signed by the Environment Ministers of

Austria, Croatia, Hungary, Serbia and Slovenia at the informal meeting of Environment Ministers in Gödöllő (Hungary) with the support of the EU Environment Commissioner at that time, Janez Potočnik, and WWF. This was the official starting signal for the establishment of the world's first 5-country BR on the Mura, Drava and Danube rivers.

In the same year, an inter-governmental coordination board (CB) for the establishment of the TBR MDD was also established. In its first meeting the CB members adopted a roadmap with all necessary steps from national nominations to a well-functioning 5-country transboundary BR. In 2012, after a seven-year long preparatory process, the first cornerstone of the planned 5-country biosphere reserve, namely a transboundary BR between Hungary and Croatia, was recognised by UNESCO. In 2014 the first setback occurred: Serbia's application for a BR was deferred by the MAB International Coordinating Council (MAB-ICC) due to unresolved border issues between Serbia and Croatia. Serbia was invited to submit a new application, but with the condition that it must include a zoning map agreed to by all five countries (UNESCO, 2014). The explosive nature of the unresolved border issue combined with UNESCO's requirement of a zoning map agreed to by all countries was to significantly hinder the further development of the process in the following. For example, after the 3rd meeting of the CB in 2013, no further CB meeting could be organised for several years. Positive steps were the recognition of the Serbian BR Bačko Podunavlje in 2017 and the Slovenian BR Mura River in 2018. In 2019, after an intensive submission process lasting only a few months, the recognition of the Austrian BR 'Lower Mura Valley' was the fifth and thus final building brick to the TBR MDD. This successful development was certainly responsible for the fact that in 2019 the series of CB meetings were finally continued. The 4th CB meeting in January 2019 in Velika Polana (Slovenia) was also attended by the director of the MAB Program, Miguel Clüsener-Godt, who outlined possible solutions to continue the TBR MDD process from his point of view. At this meeting, the Slovenian Minister of Environment, at that time Jure Leben, announced an early halt to all power plant plans on the Mura River. The spirit of optimism triggered not least by this announcement led to the decision to finance from the funds of the Interreg project coop-MDD a gap analysis to plan the necessary steps for joint submission. At the 5th CB meeting in May 2019 in Mureck (Austria), where the results of the analysis were discussed, the joint decision of all five countries was made to immediately start working on the joint nomination application to UNESCO on the basis of a strict schedule in order to still meet the UNESCO deadline for submission applications at the end of September 2019. Regarding the fulfilment of the UNESCO condition of a joint zoning map, the CB members decided to focus on the 'big picture' in the zoning map, i.e., to show in the map only the boundaries of the BR and its zonation, marking the areas with unresolved boundaries, but refraining from drawing the state boundaries. The CB unanimously agreed that, after the recognition of the TBR MDD by UNESCO, the first step should be to focus on the joint management of the disputed areas. Subsequently, the TBR MDD could be used as a joint instrument to gradually resolve the disputed boundary lines.

The Austrian research and environmental consulting company E.C.O. was contracted to coordinate the preparation of the nomination documents, and funding was provided in equal parts by the Austrian MAB National Committee, the Ministry of Agriculture, Regions and Tourism and WWF Austria. In the following three months, several drafts of the nomination form were prepared, discussed and revised at the technical level through

intensive correspondence and a working group meeting in June 2019 in Bad Radkersburg, Austria. At the 6th CB meeting in September 2019 in Noskovci (Croatia), the final tuning work on the submission documents was carried out in long, constructive discussions. However, after the initial euphoria at the end of the successful meeting, it turned out that the unresolved border issues were still a major hurdle and therefore the joint submission literally threatened to fail due to the wording of a single sentence. Interestingly, the initial insoluble disagreements concerned precisely the sentence in the submission document stipulating that it should in no way prejudice changes in the course of the border between the states. The negotiations to reach a wording agreed upon by all five states proved to be extremely difficult and dragged on for several months, so that the originally targeted deadline could not be met. After the most difficult negotiations, a joint effort, not least through persistent diplomatic mediation attempts by the Austrian CB members, was able to find a formulation accepted by all countries, so that the joint application could finally be submitted to UNESCO in May 2020. After a thorough review of the application submitted by Austria on behalf of all partner countries by the International Advisory Committee for Biosphere Reserves and a positive recommendation, the TBR MDD was approved by the UNESCO-MAB-ICC in its 33rd session in September 2021 (UNESCO, 2021).

**Table 1** Compilation of activities that led to the establishment of the TBR MDD

<i>Year(s)</i>	<i>Activities</i>
1989	Former Yugoslavia and Hungary planned a big hydropower dam on the Drava River near Đurđevac; the newly formed Hungarian regional NGOs started to fight against the construction of this dam.
1990	The initiative ‘Ecological Bricks for our Common House of Europe’, co-founded by WWF Austria, was launched. Forty environmental NGOs in several countries of Central and Eastern Europe took part with the aim of protecting the Mura-Drava-Danube river system from planned destruction as part of 24 valuable natural areas that had been preserved along the former ‘Iron Curtain’.
1993	1st International Drava Conference in Kaposvár (HU) – idea for a transboundary biosphere reserve ‘Drava-Mura’ was born (Alpe-Adria, EuroNatur); Nature Park Tikvara in Serbia was established.
1994	Danube River Protection Convention (Danube Convention in Sofia 1994) signed by 14 countries including Austria, Croatia, Hungary, Serbia and Slovenia.
1996	2nd International Drava-Mura Conference in Radenci (SI) with involvement of UNESCO; Hungarian Government setup the National Park Danube-Drava to protect the core areas instead of building hydropower dams; Croatia continued to plan a dam on the Drava at Novo Virje.
1997	Special Nature Reserve Kardorđevo was established in Serbia.
1997–1999	First concept for a TBR ‘Danube-Drava-Mura’ developed by an international working group and funded by PIN Matra (EuroNatur).
1998	3rd International Drava Conference in Zagreb ‘Sustainable economic use of lowland rivers’ (Hrvatsko šumarsko društvo, Hrvatsko energetska and EuroNatur); a counterproposal to the planned hydropower dam at Novo Virje on the Drava was developed aiming at preserving and restoring this river section as the first concept for the future ecological management of the transboundary area.

*Source:* Schneider-Jacoby and Mohl (2012) and Zollner and Wolf (2020)

**Table 1** Compilation of activities that led to the establishment of the TBR MDD (continued)

<i>Year(s)</i>	<i>Activities</i>
1999	Memorandum of cooperation between Kopački rit Nature park and Duna-Dráva National Park on 'exchange of experiences', 'harmonisation of management plans', 'publishing common publications, common programs' and 'realisations of international or transboundary projects'; National Strategy and Action Plan (NSAP) – protection of natural riverbanks of the Mura and Drava River as a strategic objective for habitat protection in Croatia; EuroNatur submits the concept for the Mura-Drava-Danube biosphere reserve to UNESCO and publishes the first map of the future TBR MDD.  Since 1999, proposals for the protection of the Drava River as part of the County Spatial Plans in Croatia.
2000	WWF Austria/Danube Carpathian Program started a conservation program for the 'Mura-Drava-Danube' Rivers; since 2000, WWF has been strongly promoting the transboundary protection of the MDD and the establishment of the TBR, has carried out several river protection campaigns and various national and international activities and projects on protection, restoration, fundraising, lobbying and communication; in cooperation with various partners and stakeholders in the cross-border region, WWF has initiated, developed and implemented a series of transboundary EU Interreg DTP projects (coop MDD, Amazon of Europe Bike Trail, and lifeline MDD) and LIFE river restoration projects.
2001	Foundation of Croatian NGO network 'Drava Liga'; Organisation of First International Drava Day; first nomination for a BR in Serbia (BR Apatinsko-Monoštorski rit) was sent by the former Federal Republic of Yugoslavia to UNESCO (UNESCO then called for stronger cooperation within the neighbouring countries and the extension of BR borders to the East).
2001/2002	Hungary (using the Espoo Convention procedure) objected to the planned Croatian hydro dam 'Novo Virje' on the border with Hungary; Drava Liga and WWF also opposed the project which was later abandoned by Croatia.
2002	First cooperation of NGOs from Serbia, Croatia and Hungary regarding a better protection of species in the Central Danube Floodplains (Gemenc/Beda/Karapanca in HU, Kopački rit in HR and Gornje Podunavlje in RS).
2001/2004	Natura 2000 sites in Austria, Slovenia and Hungary were established to protect core areas of species and areas of European importance; Mura River was included in the list of the ecologically important areas by the Slovenian Government.
2003–2013	Continuous NGO campaigns (WWF, Drava League, Croatian Society for the Protection of Birds and Nature, and Drava Federation) to stop several river regulation and sediment extraction projects along 220 km of river stretches on Drava and Danube between Croatia-Slovenia-Hungary-Serbia (e.g., planned regulation of Drava-Mura confluence, planned gravel extraction projects, planned regulation of lower Drava and Danube).
2004	Proposal of a regional park 'Drava-Mura' by the Croatian Ministry of Culture; inclusion of the Drava and Mura Rivers as central parts of the European Green Belt Initiative (IUCN/BfN).
2005	CRO-NET – inclusion of the Drava and Mura into the Croatian Ecological Network 'Ekološka Mreža' and a proposal for the Natura 2000 network; meeting of WWF with Croatian Ministry of Culture and Hungarian Ministry of Environment. Commitment by both countries to develop a TBR MDD. Coordinators appointed in both countries.

*Source:* Schneider-Jacoby and Mohl (2012) and Zollner and Wolf (2020)

**Table 1** Compilation of activities that led to the establishment of the TBR MDD (continued)

<i>Year(s)</i>	<i>Activities</i>
2006–2007	UNESCO Participatory Program co-financed preparation of the nomination in Croatia.
2007	Croatian-Hungarian-Serbian meeting of presidents in the Hungarian part of the proposed TBR MDD.
2008	At the International Symposium Drava River Vision in Maribor, the declaration on common approaches to water management, flood protection, hydropower utilisation and nature and biodiversity conservation in the Drava River Basin ('The Drava River Declaration') was signed and adopted by the participants of the Drava River Vision Symposium, by the Danube River Basin States Austria, Croatia, Hungary and Slovenia, and adopted by the participants; the Croatian and Hungarian Governments, supported by WWF, agreed to establish a joint expert working group to prepare the nomination for the transboundary UNESCO biosphere reserve 'Mura-Drava-Danube'.
2008–2011	Preliminary protection of the Drava-Mura Rivers as a regional park by Croatian Ministry of Culture.
2009	Croatian and Hungarian Environment and Nature Protection Ministers signed a joint declaration (joint declaration on the establishment of Croatian-Hungarian TBR) to create a bilateral UNESCO BR 'Mura-Drava-Danube' (WWF has highlighted the leading role of both governments with a 'Leaders for a Living Planet' award); Hungary nominated its part to UNESCO; WWF, EuroNatur published the study 'Lifeline Drava-Mura 2009–2020' on strategies and measures for restoring the river landscape.
2010	EU Danube Regional Strategy Action Plan published (in Pillar B, Priority Area 6, listed under action "To manage Natura 2000 sites and other protected areas effectively", the TBR MDD is mentioned as an exemplary project to fully establish the BR Mura-Drava-Danube); WWF started to intensively support the countries in the establishment of a TBR MDD; EU Commissioner for the Environment, Janez Potočnik expressed his support in a letter to WWF for the TBR MDD as it "fits perfectly into the biodiversity objectives set out by the council of ministers" in 2010 and "corresponds with the objectives of the Habitats and birds directives."
2011	Environment Ministers of the five countries Austria, Croatia, Hungary, Serbia and Slovenia signed a declaration at the informal ministerial meeting of the Hungarian EU Presidency in Gödöllő and committed themselves to the TBR; the declaration was supported by EU Environmental Commissioner Janez Potočnik; WWF presented the five ministers with the WWF 'Wild Heart of Europe' award; proclamation of the regional park 'Drava-Mura' in Croatia; Croatia nominated its part of the TBR MDD to UNESCO; 1st meeting of the new intergovernmental CB establishing the TBR MDD in Budapest (it was preceded by the first meeting of the International Working Group); the CB adopts a road map with all needed steps from nominations to a well-functioning TBR.
2012	Hungary and Croatia achieved UNESCO designation for the Mura-Drava-Danube TBR; 2nd meeting of CB and IWG in Zlatna Gređa/Kopački rit (Croatia) served to exchange first views on the key issues, common principles and guidelines for harmonised management of the future TBR MDD; International 'Amazon of Europe Celebration' in Letenye, Hungary.
2013	3rd meetings of CB and IWG in Vienna (Austria) to discuss the common TBR management; the initiative to establish a TBR Mura-Drava-Danube was nominated as finalist for the first European Riverprize (proposal submitted by WWF with support of all five countries.

*Source:* Schneider-Jacoby and Mohl (2012) and Zollner and Wolf (2020)



**Table 1** Compilation of activities that led to the establishment of the TBR MDD (continued)

<i>Year(s)</i>	<i>Activities</i>
2014	<p>First submission of nomination form by Serbia for a TBR (deferred by the MAB-ICC, Serbia was encouraged to submit again).</p> <p>The project ‘Mura River’ and its restoration efforts in Austria and Slovenia was awarded with the European Riverprize and was finalist for the ‘Thiess International Riverprize’ (proposal submitted by the Government of Styria).</p> <p>Designation of the Natura 2000 sites along the Mura, Drava and Danube rivers (Croatia 2014).</p>
2016	Serbia submitted the nomination form for the BR Bačko Podunavlje to UNESCO.
2016–2019	International NGO campaign ‘Save the Mura’ to stop hydropower dams on Mura in Slovenia bordering Austria (WWF, NGO Association Moja Mura, Slovenian Native Fish Society, Museum of Madness Trate). Notification of Austria, Croatia and Hungary regarding possible transboundary impacts according to Espoo (EIA) convention. Decision by Slovenian Government to stop the procedure of planned dam at Hrastje-Mota.
2017	BR Bačko Podunavlje in Serbia was designated by UNESCO; Interreg Danube Transnational Program project coop MDD Transboundary Management Program for the planned 5-country BR ‘Mura-Drava-Danube’ started (ended in June 2019).
2018	The Mura River biosphere reserve (SI) was designated by UNESCO; signed memorandum on the establishment of the management board of the TBR Mura-Drava-Danube between Croatia and Hungary; Interreg project Amazon of Europe Bike Trail ‘AoE Bike Trail’ and follow-up Interreg project ‘refocus started’.
2019	<p>The detailed planning process of the TBR MDD nomination started in January. 4th CB meeting in Velika Polana/Slovenia; 5th meeting of the CB in Mureck (Austria) in January in which the decision was made to prepare the nomination form for the TBR MDD.</p> <p>Biosphere Reserve Lower Mura Valley (Austria) was designated by UNESCO; Mura-Drava-Danube conference of the coop MDD project in Bad Radkersburg; NGO campaign against planned hydropower dams Molve I, II on Drava in Croatia (WWF, local NGOs).</p> <p>June 2019: discussion and revision of the draft nomination form in a working group meeting in Bad Radkersburg (Austria).</p> <p>September 2019: 6th CB meeting in September 2019 in Noskovci (Croatia).</p>
2020	Submission of the nomination form to UNESCO; Interreg Danube Transnational Program project “lifelineMDD – protecting and restoring ecological connectivity in the Mura-Drava-Danube river corridor through cross-sectoral cooperation” started.
2021	Approval of the TBR MDD at the 33rd meeting of the MAB-ICC (Abuja, Nigeria).

*Source:* Schneider-Jacoby and Mohl (2012) and Zollner and Wolf (2020)

#### 4 Obstacles and lessons learned

Looking back at the long and difficult process involved in submitting the TBR MDD, the authors believe that three factors strongly influenced the process.

#### 4.1 *The constructive role of NGOs*

First of all, it can be seen that the development of a transboundary protected area was from the outset a process initiated and driven by international NGOs, in particular EuroNatur (in the 1990s) and WWF (from 2000), which was 'fuelled' by the repeated regulation and power plant plans on the Danube, Drava and Mura rivers and the associated protests. The conservation efforts were triggered by the plans for the construction of a large dam on the Drava published by Croatia and Hungary in 1989, which led to the development of a sustainable counter-vision of a transboundary BR by the NGOs (Mohl and Schwarz, 1997; Mohl et al., 2009). The fact that the NGOs did not only rely on political protest or campaigns to enforce their protection aspirations, but relatively soon actively worked with the implementation of cross-border initiatives and cooperation projects, for example involving EU funds, certainly had a very positive influence on the process. Secondly, the project 'coopMDD', which aimed to develop common management guidelines for all five countries in cooperation with stakeholders from all five riparian countries (Interreg, 2017), has certainly contributed significantly to the joint submission as a transnational confidence-building measure. The resulting catalogue of guidelines was a first step towards a harmonised protected area management and a common basis on river management, forest management, agriculture, hunting, fishery, tourism, spatial planning and sustainability. This cooperation is currently being continued and extended in a follow-up project 'lifelineMDD', aimed at developing a joint 5-country revitalisation strategy and implementing it on a pilot basis (Interreg, 2020). Finally, another project that has certainly contributed to strengthening trust and cross-border cooperation is the Interreg project 'Amazon of Europe Bike Trail', which since 2018 has been developing and implementing an idea of the WWF, namely the creation of a cross-border bike trail along the Mura, Drava and Danube rivers running through all five countries (Interreg, 2018; WWF, 2018).

From the authors' point of view, when planning further transboundary BR, it is therefore advisable for any NGOs involved in the planning process not to limit their work to campaigns against threats or to political protest, but also to direct their action on conservation initiatives based on scientific knowledge.

#### 4.2 *Five participating countries and unresolved border issues*

A special challenge in the establishment of the TBR MDD was certainly the large number of participating states. While the establishment of a transboundary BR between two states is already an arduous task, each additional country involved leads to longer negotiations and a significant additional effort in terms of stakeholder involvement and the need for discussions. For example, the recognition in 2011 of the Trifinio Fraternidad BR, consisting of the three countries Honduras, Guatemala and El Salvador, was preceded by an intensive coordination process. At the TBR MDD, all those responsible were aware that the history of three of the five countries involved, namely the disintegration of the former Socialist Federal Republic of Yugoslavia from 1991 and the Balkan wars, would not make the process easier. At the same time, however, this was an incentive to contribute with the establishment of the TBR MDD not only to the protection of a unique river system, but also to the harmonious life of people across state borders, thus finally banishing the shadow of historical events.

As far as the TBR MDD is concerned, a further hurdle was added by the fact that the border between Croatia and Serbia along the Danube, which has been in dispute since the disintegration of the former Yugoslavia, and also the dispute before the European Court of Justice over the border between Croatia and Slovenia, for example in the Bay of Piran, flared up again and again during the negotiations on the TBR MDD and significantly delayed the process.

For example, Serbia's submission for a national BR in 2014 was the trigger for an intensification of the dispute over border demarcation between Serbia and Croatia. The MAB-ICC deferred the Serbian application due to the unresolved boundary issue between the two countries and called for a resubmission of a transboundary BR including a zoning map for the entire transboundary BR accepted by all countries. At the same time, the MAB-ICC urged to continue scientific and technical cooperation between the five countries in this field and to convene the CB established by the five countries for regular meetings (UNESCO, 2014). This decision of the MAB-ICC caused a shock not only to Serbia, but also to the other countries involved, as all the actors involved were aware that it would hardly be possible to negotiate a zoning map for the entire BR agreed upon by all countries at the current time. The unresolved issue of border demarcation between Serbia and Croatia was certainly a reason for politicisation of nature conservation issues and the trigger for a stalemate in negotiations that lasted for years.

The explosive nature of border conflicts and their protracted resolution processes in relation to protected areas is illustrated, for example, by the dispute between Cambodia and Thailand over the inscription of the Khmer temple complex Preah Vihear on the UNESCO World Heritage List, which has been unresolved for decades and has resulted in armed conflict on several occasions (Saikia, 2012; Grabowsky and Deth, 2016). Another example is the conflict that has been simmering for two decades between Colombia and Nicaragua over the border demarcation at the Colombian seaflower biosphere reserve located in the Caribbean Sea, which has recently flared up again on the occasion of Nicaragua's planned establishment of a 'Nicaraguan Caribbean biosphere reserve' (Chacon et al., 2018; Ramirez et al., 2019; AFP, 2021).

The concept of transboundary BRs has been referred to several times as UNESCO's tool for peacemaking (Erdelen, 2006; Stein et al., 2006; Reed and Price, 2020). Indeed, TBRs have often been established in parts of the world marked by past conflicts, such as along the former Iron Curtain (Stein et al., 2006; Reed and Price, 2020). The first TBRs were also established in this region in 1992 and 1993: Krkonoše/Karkonosze TBR between the Czech Republic and Poland and the Tatra TBR between Poland and Slovakia. Currently, the World Network of Biosphere Reserves (WNBR), consisting of 727 model regions in 131 countries, includes 22 TBRs. The most recent TBR, discussed in this article, is also located for the most part in a former crisis region. This demonstrates the role of transboundary BRs in 'science diplomacy' or 'nature diplomacy' and their ability to enable neighbouring countries to overcome conflicts in line with the central goal of UNESCO's constitution (Clüsener-Godt et al., 2021).

That TBRs can indeed have a peace-keeping effect is demonstrated by the establishment of the Bosques de Paz TBR between Peru and Ecuador in 2017. In a dispute over the shared borderline that has lasted more than 100 years, the two countries have repeatedly experienced armed conflict, which has had a negative impact on the countries' economic and social development (Stein et al., 2006). After the peace agreement between Peru and Ecuador in 1998, the two countries have increasingly begun to implement confidence-building measures and intensify cooperation in various areas,

such as nature conservation. In 2015, the Presidents of the two countries proposed the establishment of a joint TBR (UNESCO, 2016). The TBR is the result of these efforts. In 2017, South America's first TBR finally became a reality (UNESCO, 2017). The La Selle/Jaragua-Bahoruco-Enriquillo TBR between Haiti and the Dominican Republic, recognised by UNESCO in 2017, also builds on a similar background: increased transnational cooperation in environmental management should help improve political relations between the two countries (UNEP, 2013; UNESCO, 2017; GIZ, 2021). Thus, shared concern for habitat and the resulting close cooperation in nature conservation and sustainable development can indeed help strengthen trust between countries and resolve future conflicts in an amicable manner.

The importance of transboundary large-scale protected areas and transboundary cooperation has been underlined at numerous international conferences, such as the IUCN Third World Parks Congress in Durban in 2003, COP-07 in Kuala Lumpur in 2004, and the International Conference on Transboundary Biosphere Reserves in the Pfälzerwald/Vosges du Nord TBR in 2004 (Stein et al., 2006; Stein, 2007). Indeed, as Michel Batisse, who can be considered the 'father' of biosphere reserves (Marton-Lefèvre, 2007), aptly noted, biodiversity does not stop at state borders (Batisse, 1997; Taggart-Hodge and Schoon, 2016). Nature conservation and concern for one's own habitat are therefore an effective means of getting people to cooperate across political national borders. Transboundary BRs are particularly well suited in this regard (Stein, 2007; German Commission for UNESCO, 2015), because by submitting a joint application, the countries involved:

- a commit themselves to the protection of biodiversity and sustainable development
- b acknowledge and commit themselves to the implementation of the biosphere park concept and to the observance of its rules and regulations (e.g., Seville strategy)
- c recognise that the desired objectives cannot be achieved by one partner alone, and therefore
- d commit to working together.

In the past 20 years several initiatives and authors have dealt with the establishment of so-called 'Parks for Peace', i.e., transboundary protected areas with the aim of promoting and maintaining peace through joint environmental protection measures (Ali, 2007; Sandwith et al., 2001; Succow, 2007; Vasiljević et al., 2015; WCPA, 2020). The TBR MDD was also repeatedly referred to as a peace project during its development process. However, in the course of the joint work on finalising the submission documents, it was clearly felt that the term 'peace project' for the TBR MDD was predominantly rejected by the members of the CB coming from the former crisis areas, and therefore this term was not used in the submission application. In personal conversations of the authors with the colleagues it could be heard that the latter consider the Balkan conflict as closed and obviously want to avoid a quasi-official remembrance of this crisis period by using the word 'peace project'.

### 4.3 *Shifting the discussion from the political level to the expert level*

An important step in the continuation of the unification process was probably also the shift of the discussion away from the political to the purely technical expert level that

took place around 2015. In meetings of the National UNESCO Commissions of the five countries involved as well as the ambassadors of the respective permanent delegations to UNESCO in Paris in spring 2015, it was suggested that the negotiation process should be continued at the expert level due to the deadlock at the political level and that Austria could act as a mediator and thus contribute to the positive progress of the process. Since then, the process has continued through the joint work of scientists, NGOs and various regional stakeholders (for example at the meetings of the UNESCO EuroMAB group) and has been facilitated by the organisation of joint cross-border Interreg projects such as 'coopMDD' and 'Amazon of Europe Bike Trail' (see above). Indeed, several authors emphasise that the cooperation necessary to achieve common goals leads to the strengthening of trust between states (Sandwith et al., 2001; Stein, 2007; Bouamrane et al., 2016; Reed, 2020). It is therefore quite likely that these successful projects arguably provided evidence that cross-border cooperation was working and ultimately paved the ground for policy makers to agree to launch the joint submission. Strengthening trust through transboundary cooperation and demonstrating in practice that joint environmental management can be used to foster good neighbourly relations are thus key factors of transboundary BRs (Fall, 1999; Hirche, 2006; Reed, 2020).

## **5 Conclusions**

The TBR MDD, in which five countries of a former crisis region now cooperate, is certainly a lighthouse project for UNESCO, an organisation founded after World War II to build peace through education, science and culture. The establishment of this largest contiguous river reserve in Europe is a good demonstration of UNESCO's intention to promote the establishment of transboundary BRs (Ishwaran, 2006; German UNESCO Commission, 2007), namely: the potential to resolve conflicts and strengthen trust between states.

The long way from the idea to the recognition has shown that there are definitely factors on the way to the transboundary BR that can positively influence the process and whose consideration can therefore be helpful in the planning of further transboundary BRs. These include a responsible and constructive role of NGOs, joint transboundary cooperation projects involving experts, and a depoliticisation of the process.

Of course, the BR is only at the beginning of its way and there will certainly be some challenges for the BR in the coming years, which can only be solved jointly. It is conceivable, for example, that the envisaged phase-out of fossil fuels will increase the desire to develop hydropower or the increased use of rivers for navigation. However, transnational cooperation to protect habitats and build sustainable development for the benefit of the region and its inhabitants has already begun. The TBR MDD constitutes a valuable instrument for the countries involved, helping to clarify critical questions, such as zoning.

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## References

- AFP (2021) *Colombia Protests over Boundaries of Nicaragua Nature Reserve*, Barron's, 17 February [online] <https://www.barrons.com/news/colombia-protests-over-boundaries-of-nicaragua-nature-reserve-01613537104?tesla=y> (accessed 30 July 2021).
- Ali, S.H. (2007) *Peace Parks. Conservation and Conflict Resolution*, The MIT Press, Cambridge, Massachusetts, London, England.
- Austria-Forum (2020) *AustriaWiki – Donau* [online] <https://austria-forum.org/af/AustriaWiki/Donau> (accessed 30 July 2021).
- Batisse, M. (1997) 'Biosphere reserves: a challenge for biodiversity, conservation & regional development', *Environment: Science and Policy for Sustainable Development*, Vol. 39, No. 5, pp.6–33, DOI: 10.1080/00139159709603644.
- Bouamrane, M., Spierenburg, M., Agrawal, A., Boureima, A., Cormier-Salem, M-C., Etienne, M., Le Page, C., Levrel, H. and Mathevet, R. (2016) 'Stakeholder engagement and biodiversity conservation challenges in social-ecological systems: some insights from biosphere reserves in western Africa and France', *Ecology and Society*, Vol. 21, No. 4, pp.25–22.
- Chacon, C., Mantilla, S. and Romero, R.R. (2018) 'Possible joint management of the seaflower biosphere reserve in the Colombian-Nicaraguan maritime border', *Revista de Relaciones Internacionales, Estrategia y Seguridad*, Vol. 13, No. 2, pp.39–71, ISSN: 1909-3063 [online] <https://doi.org/10.18359/ries.3286>, <https://revistas.unimilitar.edu.co/index.php/ries/article/view/3286/3015> (accessed 03 August 2021).
- Clüsener-Godt, M., Köck, G. and Möller, L. (2021) 'It's about life: 50 years of UNESCO's man and the biosphere programme (MAB)', *International Journal of Environment and Sustainable Development*.
- Erdelen, W. (2006) 'Thoughts on the natural sciences at UNESCO beyond 2005', in Petitjean, P. et al. (Eds.): *Sixty Years of Science at UNESCO 1945–2005*, UNESCO Publishing, Paris, pp.593–635 [online] <https://unesdoc.unesco.org/ark:/48223/pf0000148187> (accessed 3 August 2021).
- Fall, J.J. (1999) 'Transboundary biosphere reserves: a new framework for cooperation', *Environmental Conservation*, Vol. 26, No. 4, pp.252–255.

- German Commission for UNESCO (2015) *Management Manual for UNESCO Biosphere Reserves in Africa*, 188pp, ISBN: 978-3-940785-73-2 [online] [https://www.unesco.de/sites/default/files/2018-01/Manual\\_BR\\_Africa\\_en-1.pdf](https://www.unesco.de/sites/default/files/2018-01/Manual_BR_Africa_en-1.pdf) (accessed 29 July 2021).
- German UNESCO Commission (2007) *Resolution of the 67th General Assembly of the German Commission for UNESCO, Dessau, 28 June 2007*, in Möller, L. (Ed.): *UNESCO Biosphere Reserves: Model Regions with a Global Reputation, UNESCO Today – Journal of the German Commission for UNESCO*, Vol. 2, p.89 [online] <https://www.unesco.de/sites/default/files/2018-06/unesco-heute-2-07-engl.pdf> (accessed 27 July 2021).
- GIZ (2021) *Increasing the Adaptability of Ecosystems in Biosphere Reserves in Border Regions of Haiti and the Dominican Republic*, Project of the Deutsche Gesellschaft für Entwicklungszusammenarbeit (GIZ) [online] <https://www.giz.de/en/worldwide/78494.html> (accessed 29 July 2021).
- Grabowsky, V. and Deth, S. (2016) *Heritage and Nationalism in the Preah Vihear Dispute Voices from Cambodia. Discourses on the Preah Vihear Conflict [Research Report] EFEO, Ecole Française d'Extrême-Orient, Université de Hambourg, Hal-01963845* [online] <https://hal.archives-ouvertes.fr/hal-01963845/document> (accessed 26 July 2021).
- Hirche, W. (2006) 'Foreword', in Stein, R. et al. (Eds.): *Proceedings of the 2004 International Conference and Expert Workshop of Transboundary Biosphere Reserves: 'Following-up on Seville +5'*, Naturpark Pfälzerwald/Parc régional des Vosges du Nord, Lambrecht/La Petite-Pierre, pp.7–8, ISBN-3-926775-50-5.
- Interreg (2017) *Coop MDD – Transboundary Management Programme for the Planned 5-Country Biosphere Reserve 'Mura-Drava-Danube'* [online] <http://www.interreg-danube.eu/approved-projects/coop-mdd> (accessed 15 January 2021).
- Interreg (2018) *Amazone of Europe Bike Trail* [online] <http://www.interreg-danube.eu/approved-projects/amazon-of-europe-bike-trail> (accessed 15 January 2021).
- Interreg (2020) *LifelineMDD – Protecting and Restoring Ecological Connectivity in the Mura-Drava-Danube River Corridor through Cross-Sectoral Cooperation* [online] <http://www.interreg-danube.eu/approved-projects/lifelinemdd> (accessed 15 January 2021).
- Ishwaran, N. (2006) 'Introduction', in Stein, R. et al. (Eds.): *Proceedings of the 2004 International Conference and Expert Workshop of Transboundary Biosphere Reserves: 'Following-up on Seville +5'*, Naturpark Pfälzerwald/Parc régional des Vosges du Nord, Lambrecht/La Petite-Pierre, ISBN-3-926775-50-5, p. 9.
- Marton-Lefèvre, J. (2007) 'Biosphere reserves – a visionary tool for addressing today's challenges', in Möller, L. (Ed.): *UNESCO Biosphere Reserves: Model Regions with a Global Reputation, UNESCO Today – Journal of the German Commission for UNESCO*, Vol. 2, p.89 [online] <https://www.unesco.de/sites/default/files/2018-06/unesco-heute-2-07-engl.pdf> (accessed 27 July 2021).
- Mohl, A. and Schwarz, U. (1997) 'Ein Wildfluß vor der Zerstörung – Kraftwerkspläne gefährden Nationalpark Drau', in *Nationalpark*, No. 4/97.
- Mohl, A., Egger, G. and Schneider-Jacoby, M. (2009) 'Fließende Grenzen – Grenzflüsse im Spannungsfeld zwischen Schutz und Nutzung. Flowing boundaries – tensions between conservation and use of border – rivers', *Natur und Landschaft*, Vol. 84, Nos. 9/10, pp.431–435.
- Mohl, A., Korn-Varga, I. and Györfi, E. (2020) 'The ecological corridor Mura-Drava-Danube and future five-country biosphere reserve', *IUCN Guidelines for Conserving Connectivity through Ecological Networks and Corridors*, Series No. 30, pp.104–106.
- Ramirez, F.D., Mantilla, S. and Romero, R.R. (2019) 'Paradiplomacia del gobierno local y la sociedad civil organizada del departamento Archipiélago de San Andrés, Providencia y Santa Catalina – Colombia', *Análisis Político*, Vol. 32, No. 96, pp.122–143, DOI: 10.15446/anpol.v32n96.83754 [online] <https://revistas.unal.edu.co/index.php/anpol/article/view/83754/73047>.
- Reed, M.G. (2020) 'Conceptual origins and first-generation biosphere reserves', in Reed, M.G. and Price, M.F. (Eds.): *UNESCO Biosphere Reserves – Supporting Biocultural Diversity, Sustainability and Society*, pp.13–28, Routledge, ISBN: 9781138369320.

- Reed, M.G. and Price, M.F. (2020) *UNESCO Biosphere Reserves – Supporting Biocultural Diversity, Sustainability and Society*, 362pp, Routledge, ISBN: 9781138369320.
- Saikia, P. (2012) ‘The Dispute over Prea Vihear: Seen problems, Unseen stakes’, *IPCS Special Report*, Vol. 129, 12pp.
- Sandwith, T., Shine, C., Hamilton, C.L. and Sheppard, D. (2001) ‘Transboundary protected areas for peace and co-operation’, *World Commission on Protected Areas – Best Practice Protected Area Guide-Line Series*, No. 7, 112pp.
- Schneider-Jacoby, M. (1994) ‘Sava and Drava – ecological value and future of the two main rivers in Croatia’, *Periodicum Biologorum*, Vol. 96, No. 4, pp.348–356.
- Schneider-Jacoby, M. (2012) ‘Overview of the Drava river basin’, in Bloesch, J. (Ed.): *Tributaries of the Danube II: Drava/Mura – Protected River Corridor Threatened by Hydropower*. *Danube News*, Vol. 14, No. 25, pp.2–4.
- Schneider-Jacoby, M. and Mohl, A. (2012) ‘Mura-Drava-Danube: five countries – three rivers – one biosphere reserve’, in Bloesch, J. (Ed.): *Tributaries of the Danube II: Drava/Mura – Protected River Corridor Threatened by Hydropower*. *Danube News*, Vol. 14, No. 25, pp.5–8.
- Stein, R. (2007) ‘Transboundary biosphere reserves’, in *UNESCO Biosphere Reserves: Model Regions with a Global Reputation*. *UNESCO Today – Journal of the German Commission for UNESCO*, No. 2/2007, pp.84–86 [online] <https://www.unesco.de/sites/default/files/2018-06/unesco-heute-2-07-engl.pdf> (accessed 15 January 2021).
- Stein, R., Heil, P. and Tucek, L. (2006) *Proceedings of the 2004 International Conference and Expert Workshop of Transboundary Biosphere Reserves: ‘Following-up on Seville +5’*, Naturpark Pfälzerwald/ Parc régional des Vosges du Nord, Lambrecht/La Petite-Pierre, 100pp, ISBN: 3-926775-50-5.
- Sturmberger, B., Mohl, A. and Schneider-Jacoby, M. (2021) ‘Biosphärenreservat mur, drau und donau – leben durch flussdynamik. Naturreiseführer durch eine einzigartige flusslandschaft am südrand mitteleuropas’, *EuroNatur Service GmbH*, Radolfzell.
- Succow, M. (2007) ‘Our new national parks are actually biosphere reserves’, in *UNESCO Today – Journal of the German Commission for UNESCO*, No. 2/2007, pp.79–83 [online] <https://www.unesco.de/sites/default/files/2018-06/unesco-heute-2-07-engl.pdf> (accessed 15 January 2021).
- Taggart-Hodge, T.D. and Schoon, M. (2016) ‘The challenges and opportunities of transboundary cooperation through the lens of the East Carpathians biosphere reserve’, *Ecology and Society*, Vol. 21, No. 4, p.29.
- UNEP (2013) *Haiti – Dominican Republic Environmental Challenges in the Border Zone*, United Nations Environmental Programme, 149pp [online] [https://wedocs.unep.org/bitstream/handle/20.500.11822/17680/UNEP\\_Haiti-DomRep\\_border\\_zone\\_EN.pdf?sequence=1&amp%3BisAllowed=y%2C%20Fran%3%A7ais%7C%7Chttps%3A//wedocs.unep.org/bitstream/handle/20.500.11822/17680/UNEP\\_Haiti-DomRep\\_border\\_zone\\_FR.pdf%3Fsequence%3D2&amp%3BisAllow=](https://wedocs.unep.org/bitstream/handle/20.500.11822/17680/UNEP_Haiti-DomRep_border_zone_EN.pdf?sequence=1&amp%3BisAllowed=y%2C%20Fran%3%A7ais%7C%7Chttps%3A//wedocs.unep.org/bitstream/handle/20.500.11822/17680/UNEP_Haiti-DomRep_border_zone_FR.pdf%3Fsequence%3D2&amp%3BisAllow=).
- UNESCO (2014) *Report of the 26th Session of the MAB-ICC*, Jonköping, Sweden [online] [http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/SC14-CONF-226-15-MAB-ICC\\_Final\\_Report\\_en\\_8-7-2014-v2.pdf](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/SC14-CONF-226-15-MAB-ICC_Final_Report_en_8-7-2014-v2.pdf) (accessed 15 January 2021).
- UNESCO (2016) *Ecuador and Peru Work Towards the First Transboundary Biosphere Reserve in South America* [online] [http://www.unesco.org/new/en/media-services/single-view/news/ecuador\\_and\\_peru\\_work\\_towards\\_the\\_first\\_transboundary\\_biosph/](http://www.unesco.org/new/en/media-services/single-view/news/ecuador_and_peru_work_towards_the_first_transboundary_biosph/) (accessed 15 January 2021).
- UNESCO (2017) *Report of the 29th Session of the MAB-ICC*, Paris, France [online] <https://unesdoc.unesco.org/ark:/48223/pf0000253591> (accessed 15 January 2021).
- UNESCO (2021) *Report of the 33rd Session of the MAB-ICC*, Abuja, Nigeria [online] [https://en.unesco.org/sites/default/files/revfinal\\_report\\_33mab-icc-draft\\_1709\\_numbered\\_validated.pdf](https://en.unesco.org/sites/default/files/revfinal_report_33mab-icc-draft_1709_numbered_validated.pdf) (accessed 29 September 2021).



- Vasiljević, M., Zunckel, K., McKinney, M., Erg, B., Schoon, M. and Rosen Michel, T. (2015) 'Transboundary conservation: a systematic and integrated approach', *Best Practice Protected Area Guidelines Series*, IUCN, Gland, Switzerland, Vol. 12, No. 23, 107pp [online] <https://portals.iucn.org/library/sites/library/files/documents/PAG-023.pdf> (accessed 5 July 2021).
- WCPA (2020) *Transboundary Conservation*, World Commission on Protected Areas [online] <https://www.iucn.org/commissions/world-commission-protected-areas/our-work/transboundary-conservation> (accessed 05 July 2021).
- WWF (2018) *Interreg Donau Project 'Amazone of Europe Bike Trail'* [online] <https://www.wwf.at/de/bike-trail/?useMobile=false> (accessed 15 January 2021).
- WWF/EuroNatur (2009) *Lifeline Drava-Mura 2009–2020. A Plan for Conserving and Restoring the Drava and Mura Rivers for Nature and People Study*, WWF Austria and EuroNatur, Vienna, Radolfzell, 34pp [online] [https://www.euronatur.org/fileadmin/docs/projekte/DRAVA\\_Vision\\_final\\_06042009.pdf](https://www.euronatur.org/fileadmin/docs/projekte/DRAVA_Vision_final_06042009.pdf) (accessed 5 July 2021).
- Zollner, D. and Wolf, L. (2020) *Transboundary Nomination Form for the '5-Country Biosphere Reserve Mura-Drava-Danube' (TBR MDD)*, ECO Klagenfurt, Austria.