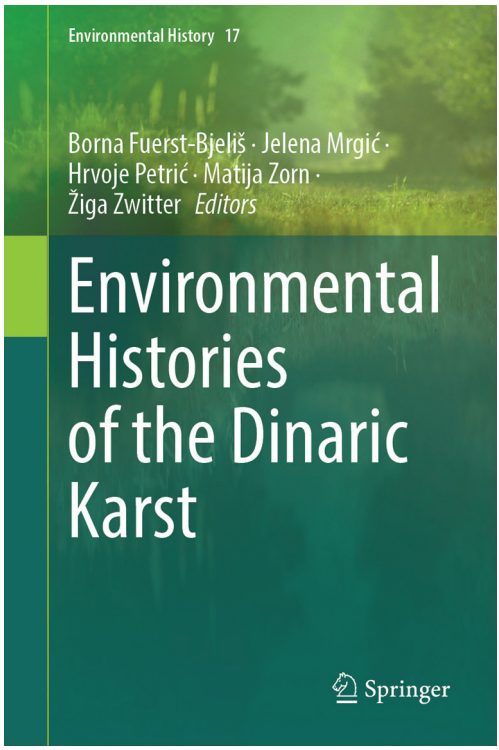
BOOK REVIEW SECTION

Fuerst-Bjeliš, B., Mrgić, J., Petrić, H., Zorn, M. and Zwitter, Ž. (eds.): Environmental Histories of the Dinaric Karst. Cham, Springer, 2024. 466 p.

The volume *Environmental Histories of the Dinaric Karst* offers a comprehensive exploration of the interplay between human societies and the karst environments of the Dinaric region. Karst terrains – characterized by soluble rocks, subterranean drainage, and a scarcity of surface water – form ecologically complex landscapes. The dynamic interplay of natural constraint and human adaptation render them particularly illuminating for environmental historical inquiry. Bringing together scholars from geography, history, archaeology, and environmental sciences, this volume presents a rich and multifaceted analysis of landscape transformation, water management, forestry, and climate variation in one of Europe's most distinctive natural regions. The editors, including established scholars from research institutions in Belgrade, Ljubljana, and Zagreb, contribute to a growing discourse that transcends traditional disciplinary boundaries, reinforcing the importance of an integrated approach to environmental history. In doing so, they align with the renowned American historian John Robert McNeill, quoting him, somewhat extensively, at the beginning of the introduction and both at the start and end of the conclusion. Moreover, the volume places the environmental history of the region within a broader European and global context, demonstrating its relevance to contemporary debates on sustainability, climate change, and resource management. This synthesis of perspectives and methodologies makes the book a valuable contribution to karst studies, environmental history, and the socio-economical historiography of Southeast Europe.



The volume is divided into four interrelated thematic sections: *Cultural Landscape, Woodland and Forests, Water and Climate,* and *Environmental Degradation*. Sixteen chapters, authored by thirty-one researchers from seven European countries, cover a vast temporal spectrum, from prehistoric human-environment interactions to contemporary ecological challenges. Within each thematic section, the chapters are arranged chronologically, providing a coherent narrative. The rich illustrations – photographs, maps, diagrams, and tables – further deepen the reader's understanding and engagement with the material. The introduction by the editors sets the stage by contextualizing the Dinaric Karst as both an ecological and cultural macro-region. Here, the authors outline what they call the "intellectual history" of karst studies, highlighting the Carniolan naturalist Johann Weichard von Valvasor (1641–1693) for his early observations of karst features and the Serbian geoscientist Jovan Cvijić (1865–1927), whose PhD thesis *Das Karstphänomen* (The Karst Phenomenon, 1893), supervised at the University of Vienna, laid the foundation for karst geomorphology. Over the following decades, the toponym "Karst," originally used to describe a cavernous limestone plateau east of Trieste, came to represent a universal model for understanding dissolutional features in soluble rocks.[1]

[1] On the internationalization of the term "karst" and its historical context, see, among others, Gauchon, C. (1999), Trudgill, S.T. (2008), Ford, D. (2015), Milanović Pešić, A. *et al.* (2019), Knez, M. *et al.* (2020), and Mattes, J. (2025).

In Part I (*Cultural Landscape*), Maja Andrič and Dirk Nikolaus Karger reconstruct the Holocene vegetation history of the region, using paleo-environmental data to illustrate the shifts in land use over millennia and tracing key transitions such as the domestication of plants and the establishment of agricultural practices. Similarly, Tjaša Tolar, Philip Mason, and Bine Kramberger explore archaeological evidence for prehistoric to medieval woodland management, emphasizing the role of early societies in shaping the region's forests through controlled burning, clearing, and selective tree harvesting. Dimitrij Mlekuž Vrhovnik and Tomaž Fabec provide a diachronic assessment of landscape formation from prehistoric to early modern times, demonstrating the extent to which human intervention has transformed karst terrain. They document how settlements, agricultural expansion, and infrastructural development reshaped the natural environment, influencing both its physical form and ecological balance. Extending this narrative, Ivan Tekić *et al.* look at modern landscape changes and fire risks in the Croatian Dinaric Karst, combining historical insights with projections for the future. Finally, Ante Blaće *et al.* examine land use and land cover changes on Croatian islands since the early 20th century, evaluating how shifts in human activity have affected the environment and outlining broader patterns of transformation across the region.

Part II (*Woodlands and Forests*) shifts the focus to the historical management of forest resources, with papers examining the impact of deforestation and afforestation practices. Filip Pavelić, Hrvoje Petrić and Mislav Radošević study attempts to regulate forest resources in the Croatian military frontier in the 18th and 19th centuries. They provide a detailed account of how forest management strategies were implemented to sustain local economies, prevent land degradation, and secure military supply chains while navigating the challenges of imperial and local governance. Meta Remec's case study discusses the environmental impact of afforestation with non-native Austrian pine (*Pinus nigra*) in south-western Carniola and Slovenia since the 1850s, highlighting the ecological consequences of introducing non-native tree species and the long-term effects on soil composition, local flora and biodiversity. In another insightful contribution, Ivan Laković and Jelena Lazarević explore the relationship between traditional forest management and transhumance practices in Montenegro. By analysing how these pastoral practices interacted with the landscape, the authors show how the seasonal movement of livestock across the mountains influenced both the forests and the social structures of rural communities.

Part III (*Water and Climate*) examines the hydrological and meteorological variations that have shaped the environmental history of the Dinaric Karst. Andrej Studen offers a micro-historical account of water scarcity and food crises in the 19th-century settlement of Senožeče (Senosetsch, Senosècchia), exploring how changes in water availability affected agricultural practices and the daily lives of local inhabitants. Aneja Rože Kravanja's chapter shifts the focus to the development of water infrastructure in the Karst Plateau between Ljubljana and Trieste during Habsburg rule. She examines how human interventions, such as the construction of wells and canals, interacted with the region's natural water cycles, revealing the complexities of managing water resources in a karst landscape. This human-nature dynamic is further explored by Mauro Hrvatin and Matija Zorn, who provide a data-driven assessment of climate trends and flood hazards in Slovenia's Dinaric Karst. Their study demonstrates how the region's hydrology is particularly vulnerable to climate change, illustrating the increasing frequency and intensity of extreme weather events.

Part IV (*Environmental Degradation*) focuses on examining the ecological consequences of human activity. Martin Meiske analyses the early 20th-century wood-impregnation industry in Bosnia and Herzegovina, revealing the significant environmental damage caused by industrial processes designed to preserve wood. His work highlights the often-overlooked environmental costs of industrialisation in the region, showing how these activities damaged forests and the wider landscape. Building on this theme, Daniela Ribeiro and Matej Simčić investigate human disturbances in the Bela Krajina landscape, in particular the impacts of deforestation, agricultural intensification and infrastructure expansion. Their study examines the long-term environmental consequences of these activities, which have left deep marks on local ecosystems. Klemen Kocjančič further investigates the exploitation of the Dinaric Karst during the Second World War, focusing on the Third Reich's military and "scientific" use of the region's natural resources. His work reveals the destructive impact of wartime activities on both the natural environment and the communities living in the area.

A comprehensive conclusion, penned by the editors, summarises the main findings of the volume and highlights their wider implications. It stresses the need for further research in environmental history, particularly its role in shaping conservation policies and sustainable land management practices in the region. Crucially, the editors advocate for an interdisciplinary perspective that merges historical insights with modern strategies to tackle contemporary environmental challenges and safeguard ecosystems affected by human activity.

One of the major strengths of the volume is its multifaceted methodology, which combines historical narrative with scientific analysis. Particularly laudable is the collaboration of researchers from different post-Yugoslav countries who have come together

for this transnational project. By incorporating approaches from palynology, geomorphology, archival research and ethnographic studies, among others, the book underlines the importance of integrating different perspectives in environmental history. The geographical breadth and chronological depth of the contributions further enhance the relevance of the volume, providing insights that extend beyond the Dinaric Karst region. Against this backdrop, the absence of geological perspectives is astonishing. Since the nineteenth century, geologists (and speleologists) have played a crucial role in advancing the understanding of the Dinaric Karst and its environments, both above and below ground. However, differing research agendas and fieldwork methodologies have led to increasingly distinct disciplinary cultures. In particular, the consolidation of physical geography as an academic field around the 1890s initiated a process of boundary work that served to differentiate it from geology, despite their shared empirical interests and spatial focus. These dynamics have resulted in the formation of separate "thought collectives" (Fleck, L. 1935) – epistemic communities shaped by shared cognitive styles and conceptual frameworks – which continue to influence disciplinary alignments and exclusions to this day.

While the book excels in presenting empirical data and case studies, a more explicit theoretical engagement with global environmental history frameworks would have been beneficial. The editors refer to key figures in the field, such as the aforementioned John R. McNeill and the Austrian historian Verena Winiwarter, but a more systematic and direct discussion of conceptual approaches – such as socio-ecological resilience or landscape memory – could have strengthened the book's overarching arguments. A closer look at the individual contributions also reveals some imbalances. While the (natural) scientific analyses are generally robust and well-supported, some historical interpretations seem somewhat less well-founded and, at time, may appear overly generalized. An example is the statement in the introduction that "modern science was born in Europe" (p. 6) in the seventeenth century – a claim that raises questions about what exactly is meant by "modern", especially given that the term "science" itself only emerged around the 1800s. Equally problematic is the assertion that Valvasor was "the first true speleologist" (p. 6) when both the term and this field of research did not develop until some 200 years later. Another problem arises in the discussion of Jovan Cvijić's impact on karst geomorphology (pp. 8–10), where the wider political dimensions of his work are largely overlooked – particularly in relation to his role in framing the Dinaric Karst as a geographical feature uniting regions of the later Kingdom of Serbs, Croats and Slovenes (1918).

One of the refreshing contributions comes from Martin Meiske, who offers valuable insights into an understudied area of environmental history in Bosnia and Herzegovina. His investigation of a Viennese impregnation company founded by the German entrepreneur Guido Rütgers (1832–1892) sheds light on the region's industrial history. While Meiske carefully explores the complexities of Austria-Hungary's "quasi-colonial rule" in Bosnia – a much-debated topic in Habsburg historical scholarship – his contribution leaves open the question of how private and public stakeholders, as well as the profit expectations of all involved parties, ultimately interacted. This is particularly evident in the editors' generalised assertion, mentioned in the introduction, that "Austria-Hungary paid little or no attention to the local population and the environment" (p. 18). Such a sweeping statement is difficult to sustain and raises further questions: Who exactly is meant here – policymakers, officials in Vienna, Budapest and Sarajevo, scientists, (foreign) entrepreneurs, or all of them together?

Finally, I would like to suggest three additional dimensions that could further enhance the understanding of the environmental history of the Dinaric Karst:[2]

1. *Political aspects:* The historical development of karst studies was closely linked to nationalist and imperial interests. Karst landscapes became important in shaping colonial claims and national identities in the Balkans. Cvijić's work, for instance, was instrumental in advancing both Serbian and Pan-Slavic aspirations, while also contributing significantly to the rise of scientific nationalism. It could be interesting to explore how environmental knowledge of the Dinaric Karst and its multi-lingual populations was used in state-building, its role in international scientific exchange, and its impact on socio-political tensions within and beyond Austria-Hungary, Serbia, and later Yugoslavia.
2. *Orientalism and the karst concept*: The history of karst research highlights the connection between European perceptions of the Balkans and the portrayal of karst landscapes as "wild," "inhospitable," or "wastelands." Early scientific descriptions frequently echoed Orientalist tropes, presenting the region as both a geological rarity and a cultural periphery. A deeper exploration of how these narratives shaped research methodologies, conservation policies, and scientific discourse offers valuable insights into the intersection of cultural perceptions and environmental studies.
3. *The rise of ecological thinking in the Dinaric Karst:* Ecological awareness of karst environments began to take shape early on, notably through figures like Joseph Lorenz von Liburnau (1825–1911), whose work played a pivotal role in shaping conservation and land management strategies. Lorenz von Liburnau's studies on deforestation, hydrology,

[2] While some of these aspects were touched upon in my recent article (Mattes, J. 2025), they merit further and more in-depth analysis.

and the interdependence of physical conditions and animal life, initiated in the 1860s during his time as a teacher in Rijeka and later as a senior ministry official in Vienna, were instrumental in framing karst landscapes as fragile ecosystems. Early ecological thinking also advocated for the "cultural elevation" of Slavic-inhabited areas and, thus, corresponded to Habsburg's colonial-expansionist ambitions in the Balkans.

Overall, *Environmental Histories of the Dinaric Karst* is a significant contribution to environmental history and karst studies. Its meticulous research, interdisciplinary approach, and regional focus make it a valuable resource for historians, geographers, ecologists, and policymakers interested in the long-term dynamics of human-environment interactions. Despite some limitations, the volume successfully advances the field of environmental history and offers a compelling model for future macro-regional studies.

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