

Muhar, S., A. Muhar, G. Egger & D. Sigrist (eds.) 2019. *Rivers of the Alps. Diversity in Nature and Culture*. Haupt. Berne. 512 pages. ISBN 978-3-258-08117-5.

Rivers play a very specific role in the Alps, their surrounding landscapes, and over large areas of Europe. They occur in various forms from mountain torrents to broad meandering watercourses and lakes, are highly interlinked, cover surfaces involving different countries and administrative levels, provide habitats for a rich and particular biodiversity, but also suffer from multiple demands and use. A wide spectrum of anthropogenic impacts has resulted in an alteration of certain river catchments and discharging waters, sometimes even in the complete disruption of a river system. Today, several national and international directives are in place for their protection and sustainable use, as well as for improvements to their ecological status. These issues contribute to a high conflict potential.

The ecological integrity of Alpine rivers, in its current status, mirrors alarmingly the effects of a variety of anthropogenic impacts. Ever-increasing demands in land use, water abstraction for energy, snow production and irrigation, water resource alterations, organic and inorganic pollution, as well as engineering activities for flood and hazard protection and for erosion control, have changed the structures and functions of river systems. River management today faces multi-dimensional conflicts as pressures continue and key legal frameworks come more strongly into play.

Nevertheless, the Alps are commonly considered *playgrounds* and the *water tower* of Europe, reflecting their pivotal role in sustaining the social and economic wellbeing of the whole continent. Several large European rivers, such as the Rhône, Rhine, Inn and Po, and their tributaries rise in the Alps, and connect the mountain arch with wide continental areas and finally the seas, providing multiple values and services for people, culture and nature.

Sustainable management and political decisions, including stakeholder engagement and public awareness, must be strongly knowledge-based, underpinned by scientific evidence. In this respect, it is a pleasure to present and discuss the book *Rivers of the Alps*, which integrates the collective knowledge of 150 dedicated authors from six Alpine countries as well as various disciplines and organizations. It provides a timely and comprehensive basis for developing a shared, bold vision, setting priorities for river and ecosystem management and sustaining the unique biocultural landscapes for which the Alps are famous. Indeed, the book will increase awareness of the cultural and biological heritage of the Alps.

The book comprises six main chapters, which are followed by portraits of 54 of the larger rivers of the Alps. Chapter 1 sets the scene, presenting terminology and the most significant geographical characteristics, and providing overviews of river names and

their meanings, as well as the long history and variety of human use and interference. Chapter 2 covers the biophysical foundations, such as mountain geology, hydrology and sediment balance, and the morphology of Alpine rivers as a result of erosion, transport and sedimentation. In Chapter 3, Alpine rivers and their floodplains are presented as ecosystems and as specific habitats for diverse invertebrate and vertebrate communities (from spiders to crayfish, amphibians, fish and birds) as well as riparian and floodplain vegetation. The chapter focuses in some detail on invasive species. Chapter 4 provides a detailed overview of settlement and economic activities along Alpine rivers, such as land use, the significance of river crossings, floods and flood protection, as well as the rivers' use for energy production. Another aspect of the link between humans and rivers, riverine systems and landscapes is presented in Chapter 5, which discusses the specific roles of Alpine rivers in mythology, sensual experience and knowledge, inspiration for art, as well as in the variety of leisure and tourism activities. Chapter 6 gives a pan-Alpine overview of the environmental status and protection of rivers, the current hydrological and morphological pressures, the rivers' ecological status and value, the proportion of river stretches situated within protected areas, and a general consideration of protection priorities at the pan-Alpine level. The chapter is concluded by a debate on river restoration and its specifics in relation to Alpine rivers. This section includes suggestions for how to implement restoration, guidelines, innovative planning tools, and a presentation of larger projects and specific project activities on Alpine rivers: there are detailed outlines of five restoration examples in Austria, France, Germany and Switzerland.

While these six chapters examine the entirety of Alpine rivers from various professional perspectives, the remaining 150 pages provide descriptions of 54 individual rivers, emphasizing their unique characters and features, usage history and management challenges.

*Rivers of the Alps* is an excellent read and provides a huge variety of fascinating details about Alpine rivers and riverine landscapes. Its thematic coverage is particularly comprehensive and will be of outstanding value not only for professionals dealing with river ecology and management, conservation and sustainable development, but also for policy-makers, and University lecturers and students in the fields of ecology, geography, river engineering, and environmental and ecosystem management. I therefore warmly recommend this book – it will lead the reader from interest to knowledge, followed by understanding and appreciation!

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Kowarik, K. (with contributions from Grabner, M., J. Klammer, K. Mayer, H. Reschreiter, E. Wächter & G. Winner) 2019. *Hallstätter Beziehungsgeschichten Wirtschaftsstrukturen und Umfeldbeziehungen der bronze- und ältereisenzeitlichen Salzbergbaue von Hallstatt/OÖ*. 380 pages. ISBN 987-3-85474-353-8

The salt mines of Hallstatt are arguably one of the most significant late-prehistoric sites in the Alpine region. This is certainly related to the remarkable preservation and the staggering number of archaeological remains, which shed new light on prehistoric mining techniques, on the daily life of miners, and even on their diet and health. But these are not the only reasons. The mines are part of a complex archaeological landscape, whose relationship with salt mining is still poorly understood. Reconstructing the network that enabled the existence of these mines is paramount to investigating some of the key issues in European prehistory: the development of socio-economic inequalities, the increasing human impact on mountain environments, and the organization of labour and production. In order to achieve such an ambitious goal, attention must move from the mines themselves to the broader geographical and productive contexts to which they belong. And this is done remarkably well in Kerstin Kowarik's book.

The author analyses how the Bronze Age and Iron Age salt mines of Hallstatt and the outside world interact with each other. Her rationale is that mines are nodes of a larger socio-economic network, and the rich archaeological record available for the mines enables us to identify their interconnections. Mining requires tools, which are produced by specialized craftspeople using local and non-local resources (wood, wool, metal, etc.). Miners need food, and the data suggest that in some periods they were provided with high-calorie standardized meals. The salt is used for different purposes, such as salt-cured meat production, a practice which is documented in the region. Through archaeological analysis and numerical modelling, the author highlights the significant specialization of Hallstatt salt mining and its strong connections with the surrounding areas from the Bronze Age onwards. One of the most interesting hypotheses put forward in the book concerns the social status of the mining community. The author does not rule out the possibility that the wealthy graves found in the Iron Age cemetery of Hallstatt do not belong to an elite group who controlled the mining industry, but rather to the miners themselves. This hypothesis, together with all the evidence of specialization and large-scale connections, make Hallstatt a unique case-study for understanding how labour and society evolved from prehistoric times to historical periods.

If the identification of possible connections between the mine and the outside world is facilitated by the archaeological assemblage, it is more difficult for the author to reconstruct the human landscape around

the mines. There is no clear evidence of permanent settlements in the valley of Hallstatt (Salzberg Valley), the closest substantial settlements being one to two days' walk from the mines. Furthermore, very little evidence of preliminary production processes can be found in the neighbouring area. Further investigations would clarify whether this represents a research or visibility bias, or whether other models of resource exploitation, perhaps associated with considerable mobility, should be surmised. Extremely intriguing is the archaeological and palaeo-ecological evidence for the pastoral occupation of the uplands of the Dachstein Plateau, south of Hallstatt, during the Bronze Age, which is seen by the author as functionally correlated with the development of the mines. A synergic relationship with pastoralism has already been assumed for other mining areas but is even more robust here, as salt is a key product in livestock rearing and (possibly) dairy production. Also interesting is the lack of Iron Age sites in Dachstein, which suggests a change in the relationship between the mines and the surrounding territory.

In conclusion, Kowarik's book is a thorough, well-documented analysis of the Hallstatt salt mines within their complex local and regional context. Some of the inferences presented are still tentative, for want of archaeological information or suitable interpretative models, but the innovative nature of the study enables the author to come up with new research questions, which will influence future investigations in Hallstatt. These questions revolve around some of the timeliest scientific issues of our discipline: sustainability, resilient economies, social inequalities, supply chains, communities of practice and place. The photos, maps and graphs are extremely informative, a perfect complement for the narrative. Particularly noteworthy are the cartography and the list of sites at the end of the book, which will enable other scholars to build on the results of this interesting research. All in all, *Hallstätter Beziehungsgeschichten* is a must-read for those interested in Alpine archaeology, prehistoric mining and, more generally, late prehistory in central Europe.

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