

Möller, L. (ed.) 2015. *Management Manual for UNESCO Biosphere Reserves in Africa – A practical guide for managers*. German Commission for UNESCO. 186 pages. ISBN 978-3-940785-73-2

In June 2015, during the 27th session of the International Coordinating Council of UNESCO's Man and the Biosphere Programme, a remarkable book was launched: the Management Manual for UNESCO Biosphere Reserves in Africa. As the subtitle suggests, this 186-page volume, available in English and French, is meant as a practical guide for managers of biosphere reserves as well as their staff, key partners and stakeholders.

The genesis of this ambitious book project is a best-practice example of cooperation, participation and co-design. The book, written by the three African authors, Professor Dr. Wafaa Amer (Egypt), Ms Sheila Ashong (Ghana) and Dr. Djafarou Tiomoko (Benin), has been developed by an impressive 110 African experts and biosphere reserve (BR) managers from almost all UNESCO BRs in Africa, in a series of five workshops in four African countries (Kenya, Ghana, Tanzania, Tunisia) in the period from 2013–2014. The manual was edited by the German Commission for UNESCO in collaboration with AfriMAB, ArabMAB and the UNESCO MAB Secretariat.

The publication of this book, enabled by financial support from the German Federal Agency for Nature Conservation and the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, is the first manual of its kind and thus long overdue.

At this point many people could ask why we would need a manual of this kind, 40 years after the implementation of the first BR? The answer is easy and lies in the complex structure of the BR concept: The expectations of what BRs should deliver are manifold and very ambitious. They should preserve biological diversity, protect natural resources and promote regional development towards a model region for sustainable action. Moreover they should serve as nationally and internationally networked research and education sites. BRs should also strengthen public awareness and increase responsibility for the impact of human activities. At the same time, however, they should also implement the abstract principle of sustainability in practice – with innovative solutions and the involvement of as many partners from the region as possible – including local communities. Taking all this into account, it becomes understandable that the implementation of this sophisticated concept is a great challenge for BR managers.

In five sections the book covers all major aspects for BR managers. The first section gives a comprehensive introduction into the BR concept. The next three sections discuss the main problems BR face in their work: sustainable development, management and participation, conflict management, governance and legal framework, financing and funding as well

as community participation and stakeholder involvement. The last section reports on special case BRs, e.g. transboundary BRs, urban BRs, and coastal and island BRs. Reference and Appendices presenting significant documents, such as the Statutory Framework of the World Network of Biosphere Reserves, the Seville Strategy, the Madrid Action Plan, as well as abridged versions of the BR nomination and periodic review forms, complete this excellent book.

In sum, this comprehensive book is of outstanding value, not only for managers of the 85 African BRs but also of high practical relevance for BRs in other parts of the world. I warmly recommend this fantastic book to all managers from UNESCO's World Network of Biosphere Reserves and to anyone interested in the work of BRs. They are bound to learn a lot from it.

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Mathieu, J. 2015. *Die Alpen. Raum. Kultur. Geschichte*. Stuttgart. 254 pages. ISBN 978-3-15-011029-4

In the introduction to this monograph the author admits that there may well be enough books on *the Alps* but no consistent historical overview, a by no means small gap, which Mathieu promises to fill with his work. Immediately this raises the question of the supposed unity of the Alps as a (cultural) landscape. The external view, from the Mediterranean, conceives this mountain range as *une montagne exceptionnelle* (p. 14) – and it is this statement by Fernand Braudel that the author has chosen as his starting point. By taking up this perspective, Mathieu, an experienced historian of the Alps, sketches his basic issue with this space, aware of the temporal dependence of the suggested unity. As early as 1913, Norbert Krebs, in his regional geography of the Austrian Alps, wrote that their “*majestic width of 160–250 km and the enormous linear extension demand [that the Alps] be treated as a separate entity*”. At the same time the geographer pointed out the – in his view – very special position of the Eastern Alps, which best expressed the previously described peculiarities of the whole in the *character of the landscape* (Krebs 2013, 4f). This means that repeatedly a reflection or perception

of the Alps as a whole has been juxtaposed to regional particularities of foregrounded uniqueness. What such presentations hardly reflect is the fact that both perspectives are imagined and dependent on their respective period.

Another thorny issue is that of the method chosen to deal in a monograph with the extreme thematic width and depth (plus a temporal axis) of a space as large as the Alps. Mathieu therefore expressly takes on a deliberately contemplative perspective, free of ideologies, and attempts to present, on the one hand, an overview, and on the other, unresolved questions as starting points for further thinking and writing, shunning apodictic assertions or generalizations (cf. p. 51). The sumptuous introductory colour photographs and overview maps clearly indicate this stance. The author apparently wants to spell out the symbolic role of the Alps in human perception and at the same time bring out the permanent tension in the projection between internal and external view. His presenting the demarcation of the Alps according to the Alpine Convention as an achievement in construction that may eventually lead to political union can be taken as the methodological principle of his chosen approach. The author stringently illustrates the fact that images and/or imaginings play a major role in the reception of the Alps in a variety of ways. He starts each chapter with an expressive picture, which quasi anticipates the ensuing analysis, but usually only becomes *readable* and accessible to the reader after absorbing the chapter itself. Across ten chapters (The Alps in the history of Europe / Alpine research and modern historiography / In the beginning was Hannibal / Coping with life – below and above / Paths towards a nation state / Religious culture, early science / Perception of the Alps – stereotype and variety / Which modernity? / Europeanization and ecologization / Results and outlook) Mathieu develops a multifaceted picture of the Alps and complements it in the annex with a chronology of great thematic breadth, which provides a compressed chronological overview of the whole theme. Mathieu does without comments in the main text. The references are arranged by chapter and in the sequence of their mention and meet academic standards. A mixed register and an overview of popular historical titles on the Alps conclude the volume.

The introductory chapters open up a diachronic view that clearly shuns the *cultural retardation* idea still held in some quarters, i.e. the Alps as museum of the traditional and the archaic. Rather, the author emphasizes the ongoing change and the processual development as the dialectic constant of normality. In doing so he sets himself up from the beginning against Braudel's assessment that the Alps in their passivity had no history (p. 32). Mathieu cleverly uses this tension between *exceptionality* and imputed lack of history for his own analysis, which, even in the necessarily brief presentation, shows itself open in all directions without becoming arbitrary. From a historian's point of view,

Mathieu points out that it was the establishment of the *Internationale Gesellschaft für historische Alpenforschung* in 1995, which initiated a decisive change from the previously dominant reception of the Alps as a space of transit to recognizing these landscapes as a living space (p. 50). This opened up not just a qualitatively new approach but also an increased attention on the indigenous, from inside, which could now be juxtaposed to the common external perspective. Assessing the Alps from below and from above across temporal changes provides an exciting take on this space. The issue of location competition, a growing concern in the mountainous parts of the Alps within the last 200 years, is thus not just an issue of advantages and disadvantages of living far from the centres of modernity, but also includes the issue of how to assess these (and the associated points of view) (p. 73).

Overall the author cleverly alters in the chapters between social and political history, thus giving the issues he analyses sufficient room in their *longue durée* and, at the same time, integrating different perspectives harmoniously, alternately starting from the landscape or from the people. The approach that dominates in the German-speaking countries, of researching cultural landscapes via landscape as an object, is here counterbalanced with researching the humans in that landscape, an approach originating in France. The largely chronological analysis within thematic chapters allows easy combination of different sections of the volume, but they can just as profitably be read separately. The aspects treated therein thus do not get lost for the reader in the potential multitude of their natural concurrence. By adopting this approach, Mathieu achieves a clear overview while allowing sufficient room for presenting a spatio-temporally complex subject, i.e. the Alps and their inhabitants. Without claiming completeness, Mathieu opens up selected themes, initiates questions and points out contradictions and omissions, putting together a multi-faceted and fascinating picture of the Alps, which starts from their history as an essential basis for understanding and leads seamlessly into the complexity of contemporary culture.

In the course of his reflections the author repeatedly revisits Fernand Braudel's statement quoted early in the volume (cf. p. 41, 70, 90, 144 and 212). Mathieu does not want to refute that statement, he sees it in its historic context, which explains, relativizes and at the same time throws up new questions about space and its inhabitants. For him the immanent connectivity of this space with its extra-Alpine neighbours remains important across time (p. 212f.). Viewed from a comparative distance, an important appeal of the Alps lies in the possibility of forming a transnational as well as transregional area of peace here. In the end, so Mathieu's almost ironic résumé in view of the introductory image of the imagined Alps, "*there are over 80 [peaks] over 4000 m [high] after all, smiling at us from afar,*" and simply being beautiful (p. 215).

References and further reading

Mathieu, J. 2001. *Geschichte der Alpen 1500–1900*. Umwelt, Entwicklung, Wirtschaft. Wien u.a.

Krebs, N. 1913. *Länderkunde der Österreichischen Alpen*. Stuttgart

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Price, M.F. 2015. *Mountains – A very short introduction*. Oxford University Press. 134 pages. ISBN 9780199695881

The first thing to draw your attention is the small size of the paperback and the attractive cover. The book is part of a series called *Very Short Introductions*, which has run to 400 volumes so far on a variety of topics. *The Mountains* issue not only introduces the readers to climate change impacts on mountains but also to the resources and services mountains provide for humans in terms of biological and cultural diversity. The book is divided into seven chapters, with the occasional black and white illustration to enhance the text. The reference list for each chapter invites further reading and the index is not only very helpful but also lists the many topics the small book actually covers. The text is packed with information and details on mountains and gives an easy-to-read insight into many facts about mountains and people's interaction with them. It is highly recommended for anybody interested and its small light-weight format allows taking it along to read at the top of a mountain.

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Fischer-Kowalski, M., A. Reenberg, A. Schaffartzik & A. Mayer (eds.) 2014. *Ester Boserup's Legacy on Sustainability – Orientations for Contemporary Research*. Springer. 267 pages. ISBN 978-94-017-8677-5

"Influential ideas are rarely unchallenged" – an interdisciplinary tribute to Ester Boserup's legacy on sustainability.

A recently presented volume of the series *Human-Environment Interactions* is dedicated to Esther Boserup and traces the author's resonance in the contemporary perception as well as her importance in current scientific discourses. On the occasion of the centenary of Boserup's birthday, a symposium in Vienna provided space for an interdisciplinary reflection and formed the basis of a forthcoming book. 36 authors from very different cultural and disciplinary backgrounds present and discuss their own scientific findings and positions in the light of Boserup's achievements.

Based on brief biographical information, *Billie Turner II* and *Marina Fischer-Kowalski* introduce Ester Boserup as "*interdisciplinary visionary relevant for sustainability*". Born in Copenhagen in 1910, she investigated

human-environment relations for most of her lifetime and received much attention in the 1960 and 1970s with her ideas on agricultural change, gender and development. The authors consider her work on *The Conditions of Agricultural Growth*, published in 1965, a landmark book in the 20th century. Boserup was rooted in the scholarly world as well as in international institutions (such as FAO, UNIDO or ILO). Thus her field observations (e.g. in India, where she lived for three years) led to new positions encompassing policies, theory and empiricism.

The work of Boserup relates to three thematic areas that also provide the structure of the book: 1) long-term socio-ecological change, 2) agriculture, land use and development and 3) gender, population and economy. This framework allows for the presentation of a broad variety of case studies related to Boserup's work in general and her model of development in particular. The latter draws on the crucial interrelation between environment, population, technology, economy, family and culture in development processes. All case studies presented in the book refer to this frame and contribute particular, mostly empirical, aspects to the picture.

A special quality of most case studies is their long-term perspective. For instance, a chapter on agrarian change and soil degradation in olive orchards in Spain covers a timespan from 1750 to 2000. *Juan Infante-Amate et al.* investigate the changes of social metabolism by example of the agro-ecosystems of Montefrío, a chain of Mediterranean mountains of the Baetic Cordillera. In a detailed manner the authors reconstruct the soil losses of the last 250 years in the context of the specific socio-economic and political developments. They come to the conclusion that "*population continues to be one of the core variables affecting the functioning of the social metabolism .. but cannot be considered to be an independent variable*". The changes from pre-industrial cultivation techniques to the modern market-oriented agriculture appear to derive from complex patterns of driving results and resulting drivers. The specific case study exemplifies and illustrates several general principles that connect with Boserup's ideas.

Similarly, in her empirical study on the *daughters of the hills*, a female perspective on agriculture in the Indian Himalayas, *Pernille Gooch* draws on complex mutual relations between the transition of agricultural societies and the changing role of women in economic as well as social life. Based on statistical data from the 1960 until today, previous findings (including Boserup's, who worked in this area) and on her own observations and interviews, she "*paints a picture of women as the losers in development*" and comes to the disturbing conclusion that "*again, we observe a negative impact on women's rights from education and modernisation*". Among other findings, this is illustrated by rising dowries to be paid to in-laws, a significant son preference and "*hardened attitudes towards control of women*". These results must provoke further discussions, since they might bring a new frame to cases of shocking violence against wom-

en, as reported from India recently. Commonly these are considered archaic patterns of behaviour that can be overcome by *modernization*.

Barbara Smetschka *et al.* contribute another case study of high relevance to current discussions. The authors focus on the use of time in small-scale farming in Austria. Time is “*a resource that is clearly limited and distributed equally to all*”. Time budgets are meaningful indicators for the quality of life, since time use relates to social, economic and cultural situations, at the individual as well as the collective level. Based on an economic model, potential future scenarios are discussed using sample farms in Lower Austria (Nussdorf ob der Traisen and Hainfeld). The results clearly indicate a shift in workloads between men and women, as the authors conclude, the “*feminisation of farming, as Boserup described it, in marginalised areas with labour-intensive but otherwise extensive forms of production can be observed in modern Austria.*”

These three case studies alone serve to illustrate the book's potential to boost, provoke and stimulate further discussions and to come up with new research questions related to sustainable development. The book is economical with pictures and even does without a portrait of the jubilee. Few chapters provide an abstract. This may prevent a diagonal scanning of the book and therefore distract fast readers. On the other hand, the carefully elaborated texts invite a reflexive discourse with the multi-faceted work of Ester Boserup. The appeal of the texts rests on their relevance, accuracy and explicit points of view. The diversity in the texts is inspiring, unlike the slim streamlined *papers* that have become constituent in recent scientific work.

The publication follows an open access policy. It is edited by Marina Fischer-Kowalski, Anette Reenberg, Anke Schaffartzik and, Andreas Mayer. Readers interested in the development of rural, mountainous or disadvantaged regions, in both theoretical and practical matters, will find a wealth of new perspectives on the issue. The perspective of protected areas is not addressed as such. However, the link between nature conservation, a thoughtful use of natural resources and the need for development and innovation is evident. A new generation of protected areas, as advocated by UNESCO, many other institutions and the scholarly world, will need to draw on this particular link taken up from such different perspectives in this book.

Michael Jungmeier, AAU, E.C.O.

Schallhart, N. & B. Erschbamer (eds.) 2015. *Forschung am Blockgletscher – Methoden und Ergebnisse*. Alpine Forschungsstelle Obergurgl – Band 4. Innsbruck university press 198 pages. ISBN 978-3-902936-58-5

The fourth book of the series *Lebensräume im inneren Ötztal* focuses on research about rock glaciers from different methodological approaches and presents results from various rock glaciers located in the Austrian federal province of Tyrol.

The short preface is followed by nine scientific articles, each with an English abstract. English translations of the paper titles would have helped, too. The editors point out that the rock glaciers in the two neighbouring Hocheben cirques are of particular interest for long-term monitoring within the LTER/LTSER platform Tyrolean Alps. LTER stands for Long-Term Ecosystem Research and LTSER for Long-Term Socio-economic and Ecosystem Research (see Mirtl *et al.* 2010 for details). The volume is targeted at students, teachers and an interested public. The chosen book title does not mirror the content (see below) entirely. It would have been useful to include the regional focus in the title.

The first paper (*Rock glaciers: An introduction; by K. Krainer*) introduces the topic of rock glaciers including definitions, relevant research methods, selected parameters at rock glaciers, age and formation, as well as the wider significance of rock glaciers. The second paper (*Rock glaciers in the Ötztal and Stubai Alps: An Overview; by K. Krainer*) presents a rock glacier inventory of parts of the two mountain ranges mentioned in the title. It is an in-depth extract of a previously published rock glacier inventory of the entire federal province of Tyrol (Krainer & Ribis 2012). An introductory overview is followed by details on five rock glaciers in the study region with references to several earlier publications. The third paper, by the same author (*The active rock glacier in the Äußere Hocheben cirque; by K. Krainer,*) reports about different research activities at that rock glacier. It describes the different methods applied (mapping, clast analysis, sieving, thermal monitoring, hydrology and ground penetrating radar/GPR) and discusses the presented data. The subsequent paper (*The rock glacier in the Innere Hocheben cirque; by K. Krainer, M. Ribis & V. Schmidt*) deals with a neighbouring rock glacier. It is similarly structured, with a comparable methodological approach (apart from GPR) and includes previous studies by other scientists. Research at this rock glacier focused on hydrochemistry and in the analysis of heavy metal content of spring water. One particular problem of the water quality at springs at the rock glacier front and in the cirque is the high content of aluminium, manganese, nickel, and iron, partly exceeding the critical value for drinking water. The source (at least for nickel) seems to be the ice in the rock glacier and the ice of the small glacier Hochebenferner.

The fifth paper in the book (*Meteorological and radiation conditions at the Äußeres Hochebenkar rock glacier; by L. Hartl & A. Fischer*) treats climatic conditions at that rock glacier, using data from 2012, gathered by an automatic weather station (AWS) installed on its surface. The authors describe in detail radiation conditions at the AWS site, which makes this paper especially interesting in terms of these conditions at an active rock glacier in an Alpine environment. The next paper (*Rock glacier discharge in the Äußere Hocheben cirque: hydrology, water chemistry and diatoms, by U. Nikus, K. Krainer, H. Thies & M. Tolotti*) deals with hydrological research started in

2007 at this rock glacier. Also presented here, but not mentioned in the title, are complementary data from a second rock glacier study area (Krummgampen). The seventh paper (*Rock glacier movement at the Äußeres Hohebenkar rock glacier between 1953 and 2010: a methodological combination of digital photogrammetry and airborne laser scanning*; by C. Klug) deals with the movement of the observed rock glacier over a period of about 5.5 decades, using ortho-images and airborne laser scanning data. Drawbacks and limitations within the analyses are mentioned meticulously in this paper (e.g. difficulties of digital elevation model/DEM generation near the rock glacier front because of steep relief and shading effects). In the penultimate paper (*The colonization of the Äußeres Hohebenkar rock glacier in comparison to the neighbouring vegetation*; by R. Graßmair & B. Erschbamer) the authors analysed vegetation conditions at 206 plots (of 1 m² each). About 75% of them are located on the rock glacier surface and the remaining 25% in close vicinity to it. The authors stress the importance of wind for plant colonization at the rock glacier. The final paper (*Trend calculation in the temperature data series of Obergurgl and other stations in the Eastern Alps*; by E. Dreiseithl, M. Stocker-Waldhuber, M. Tiefengraber & M. Ciampa) is only loosely related to the main topic of the book and deals with air temperature trends and changes at the AWS Obergurgl and nine other lowland and highland AWS stations in the Eastern Alps and their foreland over the 100-year period 1914–2013. The authors point out the problem of data homogenization and differences in trends of lowland and highland AWS stations. One of their main conclusion is the observation that warming trends for different time periods are comparable for lowland and highland stations, whereas cooling trends are absent for the two highland AWSs Sonnblick (3105 m) and Zugspitze (2960 m).

In general all papers are well written and of high value for the target audience as described in the preface as well as for scientists interested in the periglacial environment of Austria. There are, however, some minor shortcomings. The comment that natural hazards in relation to rock glaciers are rare and unknown in Austria is not wholly supportable (e.g. Lugon & Stoffel 2010; Schoeneich et al. 2014). Nor is the statement about few permafrost data outside rock glaciers for Austria is not entirely correct (cf. permafrost boreholes, ground temperature monitoring sites and geophysical measurements; Krainer et al. 2012). For several statements in the book additional references would have been helpful for the target audience. Some clarification about the proper usage of the BTS method (bottom temperature of the winter snow cover) – which in its original sense is a temporal point measurement in late winter (Haerberli 1973) – would have been an advantage.

Some maps are marred by inconsistencies and omissions. The use of different class limits makes a direct visual comparison of different analysed epochs more difficult. The book could have done with some

more maps and photographs, e.g. of the location of a much discussed AWS.

In general the authors describe their chosen methods very thoroughly. However, in some instances the methodological explanations lack accuracy. In one paper, for instance, a mean annual ground temperature is presented, although four months are missing from the monthly values. In another paper more information about the exact location and characteristics of so-called *reference creeks* would have been helpful, as would a reference for the Shannon-Index mentioned elsewhere.

In sum, this book is a great contribution on rock glaciers and related environmental parameters and addresses different methods from various fields of rock glacier research. Relevant aspects from geomorphology, geology, climatology, biology, chemistry, geophysics and geodesy are considered. The book is written in a very scientific way, although the book is also highly suitable for the defined target audience. Most of the drawbacks listed above are only minor. The editors were able to compile an excellent overview of recent research activities, especially those at the Äußeres Hohebenkar rock glacier, which makes the book very valuable for the defined target audience and for people involved in Alpine rock glacier research in Austria as well as abroad.

References

- Haerberli, W. 1973. Die Basis-Temperatur der winterlichen Schneedecke als möglicher Indikator für die Verbreitung von Permafrost in den Alpen. *Zeitschrift für Gletscherkunde und Glazialgeologie* 9: 221–227.
- Krainer, K. & M. Ribis 2012. A Rock Glacier Inventory of the Tyrolean Alps (Austria). *Austrian Journal of Earth Sciences* 105(2): 32–47.
- Krainer, K., A. Kellerer-Pirklbauer, V. Kaufmann, G.K. Lieb, L. Schrott & H. Hausmann 2012. Permafrost Research in Austria: History and recent advances. *Austrian Journal of Earth Sciences* 105(2): 2–11.
- Lugon, R. & M. Stoffel 2010. Rock-glacier dynamics and magnitude–frequency relations of debris flows in a high-elevation watershed: Ritigraben, Swiss Alps. *Global and Planetary Change* 73(3/4): 202–210.
- Mirtl, M., M. Bahn, A. Battin, A. Borsdorf, M. Englich, V. Gaube, G. Grabherr, G. Gratzner, D. Kreiner, H. Haberl, A. Richter, S. Schindler, U. Tappeiner, V. Winiwarther & R. Zink 2015. *LTER-Austria White Paper 2015. Forschung für die Zukunft*. LTER-Austria Schriftenreihe 2.
- Schoeneich P., X. Bodin, T. Echelard, V. Kaufmann, A. Kellerer-Pirklbauer, J.M. Krysiecki & G.K. Lieb 2014. Velocity changes of rock glaciers and induced hazards. In: G. Lollino et al. (eds.), *Engineering Geology for Society and Territory* 1: 223–227. DOI: 10.1007/978-3-319-09300-0_42.

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