

BOOK REVIEW

Wilkens, H., Culver, D.C. and Humphreys, W.F. (eds). 2000. ***Subterranean Ecosystems. Ecosystems of the World 30***. Elsevier Science, Amsterdam. 791 pp. **Reviewed by Mia Thurgate.**

The publication of *Subterranean Ecosystems* is an exciting and welcome addition to the ever-growing biospeleological literature. The book will be of interest to ACKMA members on two counts. Firstly, the book contains a considerable Australian content, with six of the 35 chapters being written by Australian researchers, and 17 chapters in total referring to the Australian subterranean faunas. In addition, the importance of our subterranean communities has been finally highlighted for an international audience. Readers from New Zealand will find much of general interest in this book, but unfortunately specific research from this country is not well represented.

Secondly, a review on the conservation of Australian cave communities can be found in one of the latter chapters. This review, written by Elery Hamilton-Smith and Stefan Eberhard will be invaluable to cave managers. It provides an overview of the nature of Australian cave communities and their special characteristics. A summary of the main types of karst and associated subterranean ecosystems is provided and is organised by provinces. This approach has value in terms of organising complex information, but I found it hard to identify which karst areas fit into particular provinces. This may have been improved by better labelling of the map, or by a table summarising locations mentioned in the text and organised by province. The chapter also discusses threats and sensible conservation strategies for the management of cave faunas.

For those with little or no background in biospeleology, some of the chapters in the book may at first seem difficult to understand. Biospeleology, like many scientific disciplines, has generated a vast number of specialist terms. Even as someone involved in this field, I find it hard to keep up with the terminology. So I was very pleased to see that Section 1 of the book includes a glossary of common terms. This is long overdue and invaluable, and I'd like to see an even more comprehensive glossary produced than this book provides. In reality this should be the subject of a separate publication!

The rest of the book is separated into seven sections as follows.

Section 2: Overview of subterranean environments and associated ecosystems
Section 3: Global overview of subterranean invertebrate, fish and amphibian groups
Section 4: Adaptations required for survival in subterranean habitats
Section 5: Subterranean food webs
Section 6: Evolution of subterranean faunas
Section 7: Case studies of ecosystems or particular cave systems
Section 8: Conservation

Space precludes an in-depth review of each section or each chapter, but there are some general comments I'd like to make. The aspects of this book that I really liked were the interesting range of chapters chosen for inclusion, the fact that the Australian faunas are well-represented, a range of subterranean habitats aside from karst are considered, and the book is well-organised (including a comprehensive series of indexes). It is obvious that considerable and planning and meticulous editing have gone into this book. I enjoyed reading chapters in Section 5 on guano communities, volcanic habitats and root-mat faunas. Section 6 provides a good summary of the most topical issue in biospeleology, namely how did cave faunas evolve? Bill Humphreys' paper on Cape Range and Barrow Island (Section 7) is another standout. In fact, for those with time on their hands, this is a great book to leave lying around and dip into when the urge takes you. There are many fascinating stories and interesting snippets of information to find.

Any criticisms that I have are quite minor. Brief summaries or abstracts at the start of each chapter would have been useful, but this may have been limited by a standard format for books in this series. The writing style of some of the chapters is also a little awkward. For some chapters I suspect that this may be due to the fact that English is a second language for the authors. In other cases, the text favours highly technical language over plain speaking and may not appeal to a wider audience. The quality of diagrams is variable and a small number have been reduced to the extent that they are difficult to interpret.

I would also like to see books such as *Subterranean Ecosystems* encouraging more contributors to discuss whole ecosystems. For a very long time biospeleologists have focussed research efforts on troglobites (fauna that cannot survive outside of subterranean habitats) and their aquatic counterparts (stygobites), and have paid little attention to other animals that share the cave environment. As cave managers it is important to protect the total ecosystem and not just one group of organisms in isolation. 'Ordinary' cave organisms may be an important food source, or may eventually evolve into future cave specialists, so they should not be ignored.

Overall I highly recommend this book. It will appeal to anyone with more than a passing interest in biospeleology. It is an essential text for serious students and researchers. However, the cost of the book (with current exchange rates, around AU\$375) will put it out of reach of many cave managers. In my opinion, this book is worth the money, and certainly ACKMA members should be pressuring their local university and state libraries to purchase a copy if they cannot justify a personal or workplace copy.