

Caves. Processes, Development and Management. *Second Edition.*

Book Review ~ Kevin Kiernan

Gillieson, David Shaw 2021 *Caves. Processes, Development and Management*. Second Edition. Wiley Blackwell, Hoboken NJ. 508 pp.

Many ACKMA members will be familiar with the first edition of Dave Gillieson's volume on caves and their management, published in 1996. This revised edition expands upon the scope of that original volume and presents much additional knowledge of caves and cave management that has been gained by researchers world-wide over the subsequent two and a half decades. It will be an invaluable addition to the library of today's cave managers, cave scientists, and others interested in the topic.

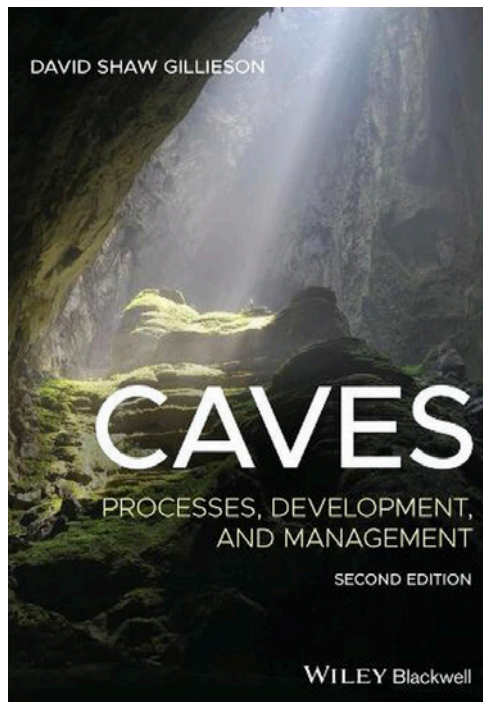
The initial chapters commence with an introduction to caves and karst before focusing on more technical details of cave science, including cave hydrology; processes of rock dissolution; speleogenesis; speleothems; and other cave sediments. Cave and karst managers seeking to broaden their understanding of such topics will be very well served by these chapters.

Two subsequent chapters usefully summarise the techniques available for dating cave deposits and for deducing past climates from them, with excellent examples of how this has contributed to emerging knowledge of the past.

Whereas many karst texts tend to have a fairly limited focus on geoscientific and/or hydrological aspects of karst, Gillieson's volume is distinctive in adopting a wider perspective, and doing so comprehensively and well. Separate chapters are devoted to cave ecology, cave archaeology and historic uses of caves, before the book then zeroes in on the key focus of ACKMA, namely the management of caves.

One chapter entitled simply "Cave Management" ranges widely. Material on tourist cave management includes discussion of such issues as lighting, engineering, interpretation, guide training, radon gas, and the impacts of cave cleaning. The impacts and management of recreational caving and cave rescue operations are included in this chapter, together with sections on cave classification and other matters.

The old adage about it not being possible to conserve the holes in the cheese without also considering the cheese is also to the fore in this book. A lengthy chapter on catchment management should leave readers in no doubt that caves are not a separate underground world, but part of a single world of which the surface environment forms part – and that protection of caves requires appropriate management of that surface. This chapter ranges across a myriad of issues including the



importance of karst catchment definition, the need to protect soil, vegetation and water quality, and risks associated with groundwater lowering. A wide variety of threats including soil erosion and microbial contamination of groundwater are addressed, together with the potential for activities such as agriculture and golf course management to result in pollution of karst groundwater by fertilisers, herbicides and pesticides. Useful discussion of conflicts in karst management is also included

A chapter on the documentation of caves, including geoheritage assessment, concludes the volume.

Of particular interest to southern hemisphere readers will be the inclusion in this book of numerous examples of cave science and cave management topics drawn from the southern hemisphere. With the notable exception of the previous *Karst* tomes by Joe Jennings, and the New Zealand perspectives so effectively injected by Paul Williams into Ford and Williams *Karst Geomorphology and Hydrology*, most karst texts tend to be written by northern hemisphere authors with predominantly northern hemisphere perspectives.

An excessively northern hemisphere perspective does not always serve southern hemisphere readers well (one of my fondest memories is of an International Geomorphological Congress in Spain where the conclusions of a researcher from Africa that features on the southern side of a mountain were likely of glacial origin were resoundingly challenged by prominent northern hemisphere expert on the basis that "everyone knows that glaciers form on the more shaded northern side of mountains"). No such blind spots are permitted in this Gillieson volume. While amply covering the northern hemisphere, it also includes considerable material from southeast Asia, New Zealand, Australia and elsewhere in the southern hemisphere. This includes long overdue acknowledgement of some of the unique characteristics and global significance of the Nullarbor karst, something that might hopefully influence its future management, including decisions yet to be finalised regarding the putative "green energy" project that has recently been proposed and which would see hundreds of square kilometres of this iconically flat and brittle hollow karst landscape covered by visually intrusive and heavily water-dependant infrastructure.

No karst or cave manager should be without this book.

Kevin Kiernan