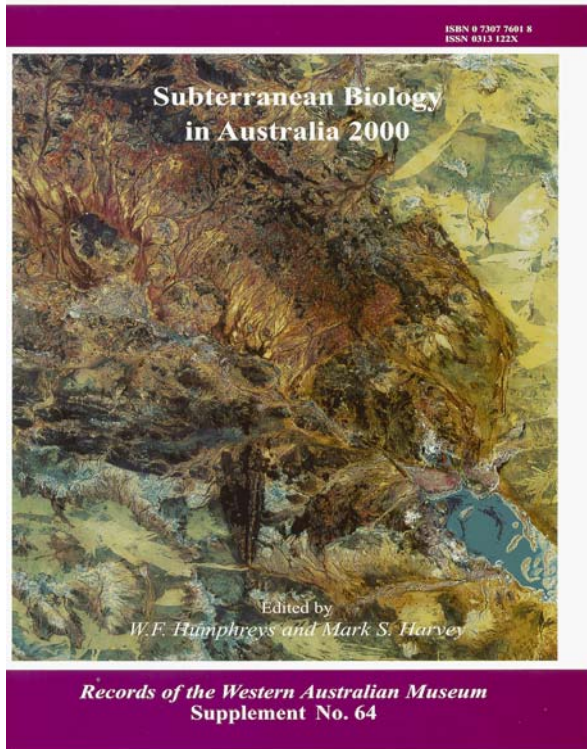


BOOK REVIEWS

Subterranean Biology in Australia 2000, Records of the Australian Museum, Supplement No. 64. Edited by W. F. Humphreys and M. S. Harvey. Published 2001 by (and available from) the Western Australian Museum. 243pp, Price AUD\$33.00. ISBN 0 7307 7601 8. **Reviewed by Dr. Grant Hose.**



Subterranean Biology in Australia 2000 is a collection of scientific papers on various aspects of the ecology, biology, distribution and systematics of subterranean invertebrate fauna in Australia. The papers on ecology, biology and distribution stem from those presented at the *Dampier 300 – Biodiversity in Australia 1699-1999 and Beyond* conference held in Perth in December 1999. Added to those were a number of papers on systematics of subterranean fauna.

The first of the scientific papers is a summary of the current knowledge (and gaps therein) of hyporheic fauna (subsurface stream fauna) in Australia. The following papers have a more groundwater and karst focus. The second of the scientific papers reports on genetic studies on populations of a troglotic millipede from Cape Range, WA. Three genetic provinces were identified which related to the geomorphological structure of Cape Range. This paper highlights some important issues for the conservation of karst fauna.

Two papers authored by Mia Thurgate et al. discuss the diversity of both terrestrial and aquatic cave faunas in Eastern Australia. The first paper challenges the long held belief that caves of NSW were depauperate in terms of cave-adapted

fauna, and identifies several sites as biodiversity hotspots. The second paper reviews the diversity and distribution of aquatic cave fauna across the eastern coast of Australia (including Tasmania). The second of Bill Humphreys' papers reports on the diversity of aquatic fauna in groundwater calcrete aquifers across the Australian arid zone. The paper explores the hypothesis that the distribution of genetically related fauna could be predicted from the paleodrainage. This proved not necessarily to be the case, and provides some fantastic discussion on the topic

Two papers authored by Elery Hamilton-Smith and Stefan Eberhard are grouped in a section on conservation and management. Elery calls on his experience in karst conservation across the world to identify threats to karst biodiversity in Australia and proposes some mechanisms through which the conservation of karst fauna maybe achieved. Stefan's paper reports on considerations for monitoring cave fauna, and draws on his experience in monitoring impacts in the Exit Cave system in Ida Bay, Tasmania.

The remaining papers are technical reports on the systematics of annelids, crustaceans and arachnids. While these papers are highly technical and make difficult reading for most but other systematists, they represent an important step in cataloguing the Australian subterranean fauna. Many of the papers also provide keys for the species described. At the end of the publication is a series of abstracts from other relevant papers presented at the *Dampier 300* conference.

This book pulls together much of the current research in karst biology in Australia. Perhaps the greatest criticism of the book is that a number of the papers in this volume discuss biodiversity, yet it is never adequately defined. From a scientific perspective is not merely a measure of how many different species there are (which is termed richness).

The strength of this publication is that it demonstrates many of the issues pertinent to the conservation of karst systems; the interconnectedness of the karst, the rarity of the fauna and the evolutionary pathways of fauna that are shaped, at least in part, by the karst terrain. It also provides information that covers much of the continent. It is not a light read, but for those with a keen interest in the ecology and biology of karst areas, the papers in this volume provide very interesting and stimulating reading. It is not a prescription for management of subterranean fauna, but provides information from rigorous scientific studies on which management decisions can be based.

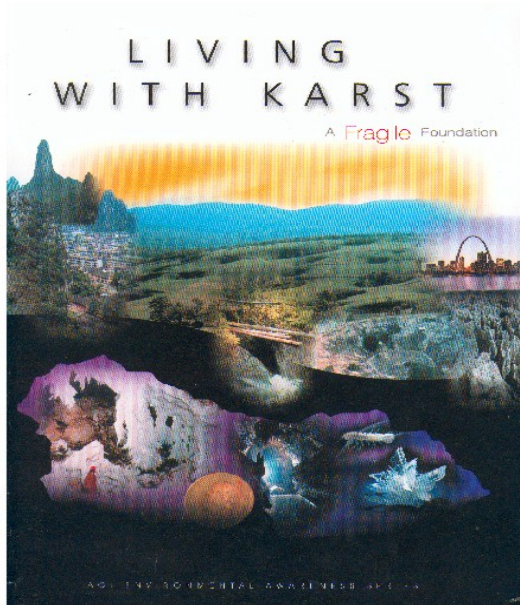
Living With Karst: A Fragile Foundation by George Veni and Harvey DuChene, editors Published 2001 by American Geological Institute in cooperation with NSS, ACCA and US Government Agencies. 64pp and poster. To order contact AGI at www.agiweb.org. **Reviewed by Nicholas White.**

This booklet is part of the AGI Environmental Awareness Series and was written by 8 authors with the cooperation of the National Speleological Society, the American Cave Conservation Association and various US State and Federal agencies. It addresses the problems associated with living in karst terrain.

The contents are organised into 6 chapters. The introductory chapters address what the environmental concerns are and why

they matter (25% of the world's population lives in karst areas), and defines karst. This concentrates on the hydrologic characteristics of karst. The values of karst are then described before leading into the chapter "Environmental and Engineering Concerns", which discusses collapse phenomena, drainage problems, groundwater contamination from both urban, industrial and agricultural sources as well as sewage disposal.

The fifth chapter is titled "Guidelines for Living with Karst" and provides prescriptive guidelines for developments on karst. The final chapter is "Looking to the Future" which is a comprehensive guide to sources of information in the USA including non-government and government agencies concerned with management of karst lands. There is both a glossary and a reference list that provides a good spread of the source literature relevant to hydrological and engineering issues on karst.



The booklet is very well illustrated with appropriate photographs and diagrams in colour. Being part of an awareness series it is introductory in nature but provides valuable information for anyone living in karst terrain to the problems and constraints posed by karst.

There are sufficient examples to make it a valuable booklet for politicians and professionals who work with karst or who are involved in planning and development on karst lands.

The US has had its share of collapses on karst and of water pollution problems associated with karst. This is partly a function of population density but also of cultural values and laws associated with ownership and development which were in place long before the constraints now imposed on development by environment laws of State and Federal legislatures.

What is the relevance of this booklet for Australasian readers?

The introductory chapters defining karst and its associated values are certainly the most readable that I am familiar with. The booklet provides the basis for anticipation of problems on karst rather than just the reactive remediation of problems once they have occurred. The examples are largely from the US but they are used illustratively. Australasia has examples of sinkhole collapse affecting property roads and rail as well as groundwater pollution and contamination from both point and disseminated sources. Perhaps Perth is the only large urban area dependant on karst groundwater for its domestic needs but this does not diminish the need for good sources of information in an accessible form to provide information on karst and its interactions with people.