

## BOOK REVIEW

### **An Atlas of Tasmanian Karst, Research Report No. 10**

Kiernan, Kevin (1995). Tasmanian Forest Research Council, Inc., 2 volumes: 607 pp. Cost is \$40 Australian dollars per volume. Approximately \$51 USD for both volumes plus postage.

The ever prolific Kevin Kiernan has once again presented us with a voluminous tome that is more than just an atlas. If you are looking for a full set of maps of Tasmanian caves, forget it! There are only five cave maps in the entire atlas. It is, after all, a karst atlas.

Chapter one, entitled, "The Nature of Karst Systems," is the first of two that make up Part A: "Karst Systems: A Tasmanian Context." The chapter is a short lesson in karst landform classification. The heart of chapter one is six tables that categorize everything from limestone lithologies and controls on karst evolution (Table 1.1) through surface karst landforms (Table 1.3) to human use and aesthetics (Table 1.6). This single chapter could be the core of a short course on karst phenomena.

Chapter two is focused on the specific karsts of Tasmania. The author describes the lithologic systems where karst formed on the island. Contemporary climate and paleoclimatic systems are addressed, as are their influence on limestone denudation and karst morphology development.

Once this framework is set Kiernan goes about describing the karst systems formed on Tasmania. He has developed seven process-oriented systems (with associated subsystems) by which he describes the Tasmanian karst. Those systems are defined by lithologic, structural, climatic, solvent, denudation, topographic and exposure style processes. (The exposure style is the manner in which a limestone outcrop is exposed to weathering.) The chapter concludes with a discussion on the influence of time on these systems. There is also a caution to be aware of the great complexity of karst systems. The reader is told that the parameters presented are very broad and that the many systems described are not spatially exclusive. Rather, they often overlap and interact with each other. This is good advice for studying karst systems anywhere, as we sometimes seem to get focused on one event or process and lose the big picture.

Part B is composed of six chapters following a short introduction. This is the actual heart of the atlas. The introduction explains the format of the atlas and the keys to the degree or intensity of karstification of the locations. Some three hundred confirmed or probable karst areas are defined in this atlas. The individual karst areas are delineated by using natural features such as watersheds rather than human-derived boundaries (e.g., townships). The introduction to Part B also contains a table listing all carbonate rock occurrences on the island and for each listing the following information is given: a code number, the name of the area, its grid reference, the Forestry District it is located in, a simple yes or no on whether this site

was confirmed by a visit, and, finally, the intensity of karstification of the area. Two maps of Tasmania are also included. One shows the six regions of the island used in this atlas. The second is an index map showing the coverage and names of the 1:100,000 topographic maps that were reduced for inclusion in this study.

The following six chapters each cover one of the six regions of Tasmania: North-west, Western, South-west, South-east, North-east, and the Bass Strait Islands. Each of the six chapters begins with an introduction describing the topography, climatology, geology and general geomorphology of the area. This is followed by the outline map of the general locations of the outcrops of the karstified rocks in the region using the above-mentioned reduced topographic sheets. Each karst area or potential karst outcrop has its own unique code number such as NW 1 or W 59 (for example, the North-west region has 57 unique karst areas). Each chapter is then made up of tables of data on each of the unique karst areas. Topographic maps and geologic maps of the karst areas are listed. Other listed information includes: types of carbonate or other rocks, climate, karst system types, existing documentation on the area, number of trips to the area, who were the investigators (cavers, geologists, biologists, etc.), type of land ownership, management problems and issues, and much more. In addition a few paragraphs may be devoted to where to find more extensive information on the area. If available, information is given on the water chemistry (mostly collected by the author) and analysis of the rock (from a variety of sources). Each of the chapters ends with remarks that summarize all of the data on that specific region. The author then discusses the significance of the karst found in that given region, as well as other values such as archaeology and the impact of modern society.

"Part C: Discussion and Conclusions" is perhaps the most significant part of the atlas. In this part, there is one chapter of some 30+ pages on "The Management of Tasmania's Karst Estate". This is must reading for those interested in karst management. Everything from pesticides, construction, and sewage, to recreation and its impact on the values of karst, is covered.

Finally, Kiernan, in his usual thorough style, provides the reader with a 24-page bibliography of international scope on karst and karst management. This resource greatly increases the value of the atlas.

There is little negative one can say about the atlas. The author has given karst researchers another superb product. I recommend the atlas, not only to the collector, but as a model for similar research done elsewhere. I anxiously await Kiernan's next production.

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